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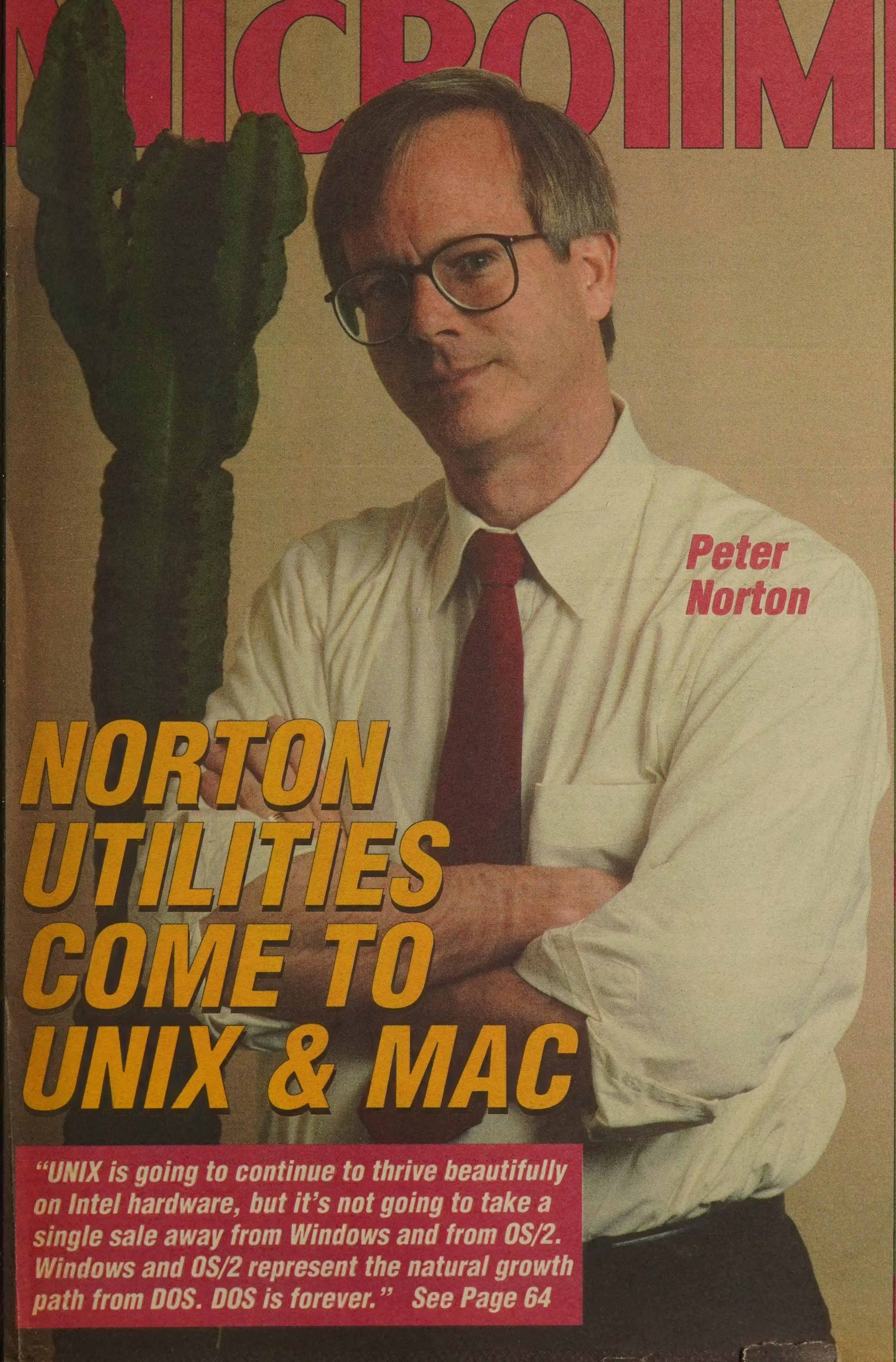

Peter Norton

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STORY ON PAGE 36

Mitsuba Ninja 12V Portable:

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STORY ON PAGE 58

Dvorak's Press Releases:

Press Release: "With Windows, users can jump from one task to another, each accomplished in a different box." Dvorak: "Gee, just like the Amiga!"

STORY ON PAGE 206

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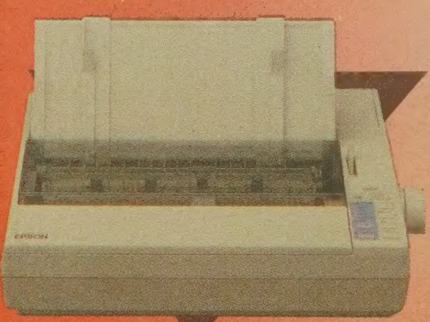

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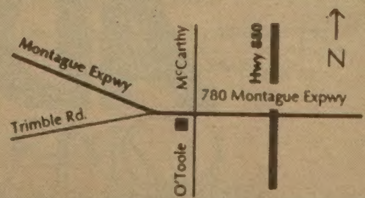

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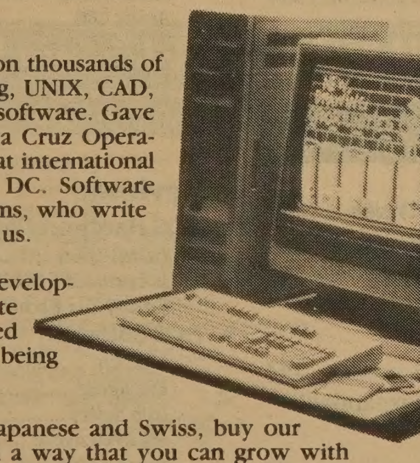

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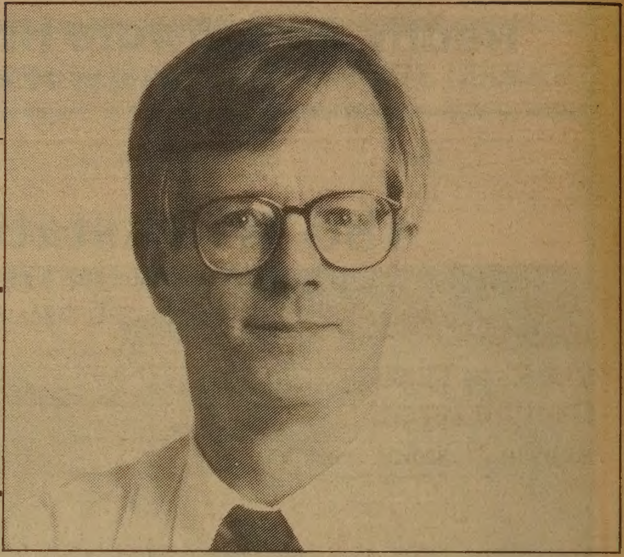

Peter Norton In The Multivendor Office *By Mary Eisenhart* ... 64
The Norton Utilities aren't just for DOS any more—the office of the future, according to founder Peter Norton, is likely to contain a number of computer types and present some global maintenance and security issues.
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A NOTE FROM THE EDITORS:

This month's cover story features an interview with Peter Norton, whose famous Utilities have been the salvation of many a DOS file. Norton has recently moved into both the Mac and UNIX universes, and he has some interesting things to say about the respective roles of UNIX and OS/2 in the business world of the next few years.

Adding further interest to the story, shortly after the UNIX announcement Norton Computing was acquired by Symantec, which should do a good deal to entrench the combined company as a leader in the multivendor marketplace.

In other news, Microsoft announced Windows 3. Dvorak seems unimpressed, at least with the press release. See page 206.

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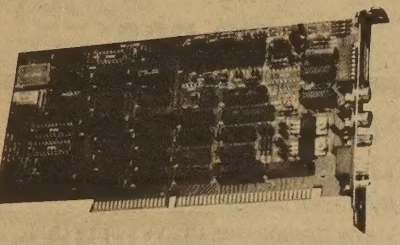

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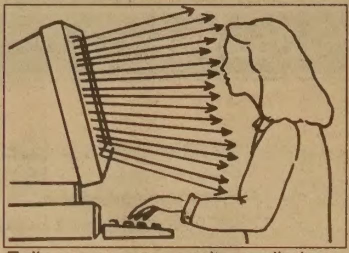

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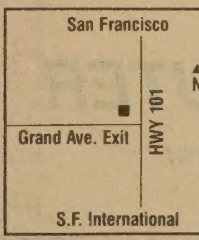

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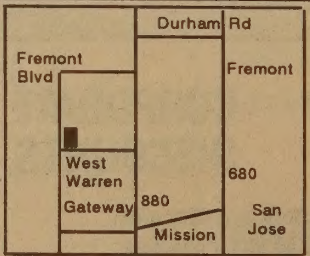

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This Vol. 7 No. 6, June11,1990, Whole No. 70 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 5951 Canning St., Oakland, CA 94609. Phone Advertising Office (415) 652-3810. Los Angeles Office, 1800 N. Highland, Suite 506, Hollywood, CA 90028. Phone (213) 467-7878. San Jose Office, 36 Harold Ave., Suite 2, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 801 East Katella Ave., Suite #210, Anaheim, CA 92805. Phone (714) 776-2900.

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Subscription rates: 12 issues, U.S.: 3rd Class $24 (Allow 3 to 4 weeks for delivery), 1st Class $50 (Allow 1 to 2 weeks for delivery. MEXICO & CANADA: Surface Mail $40 (Allow 4 weeks for delivery). Air Mail $65 (Allow 1 week for delivery). OVERSEAS: Surface Mail $40 (Allow 6-10 weeks for delivery), Air Mail $160 (Allow 1 week for delivery). To receive sample issues, please send $2 ($4 for overseas) to cover postage costs. Back issues are $4 each.

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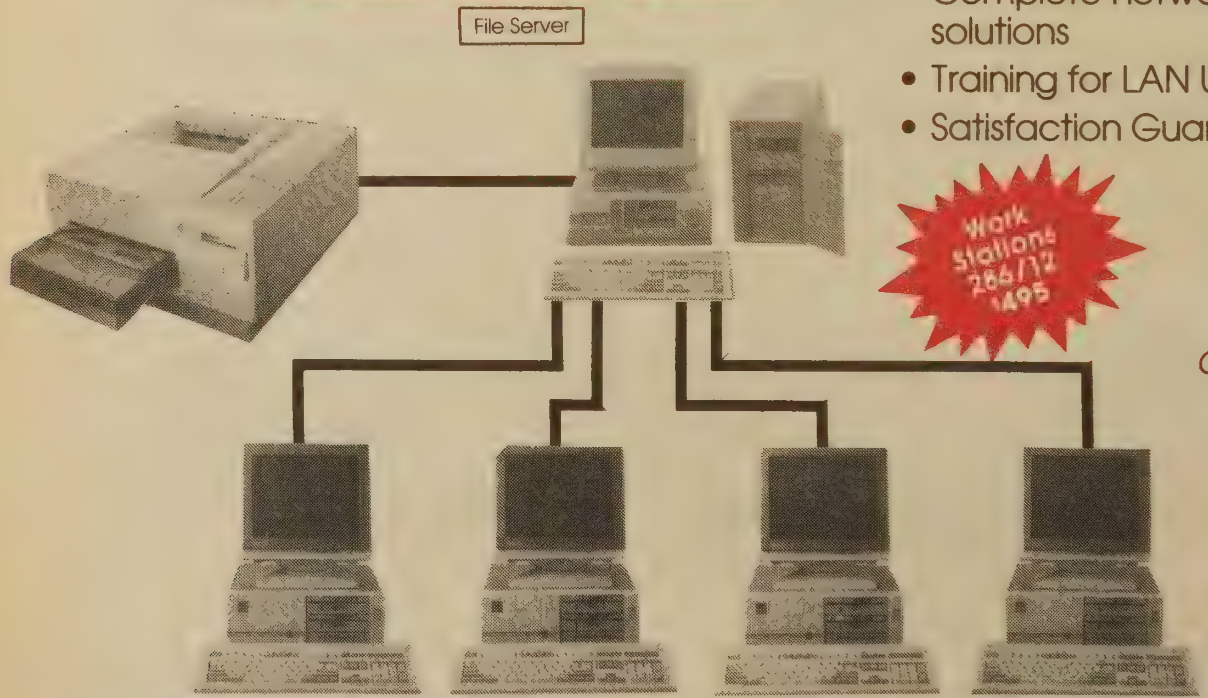

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NEWS & VIEWS

INDUSTRY INSIGHT

BY PAUL HOFFMAN

JUDGE DROPS XEROX SUIT AGAINST APPLE

In one of the quickest resolutions to a computer lawsuit, federal district judge Vaughn Walker dismissed all six charges that Xerox made against Apple in its recent lawsuit. The judge had dropped five of the six counts in March, and dropped the sixth in May.

The lawsuit, filed December 14, 1989, alleged that Apple's Lisa and Macintosh copyrights should be cancelled because they incorporated material from the operating system and display software for Xerox's Star computer. Xerox also claimed that Apple used unfair competition when it claimed that Apple was the sole owner of the copyrights to the look and feel of the Lisa and Macintosh display.

The case rested on Xerox's assertion that Apple had interfered with its ability to license the Star interface. Xerox was unable to show any significant interference to the judge, so he dismissed the charges in summary judgment. Xerox may appeal the decision, although it is unlikely to be heard by a higher court given the judge's finding of lack of merit.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman @well) and MCI Mail (264-3171). He also writes popular microcomputer books.

ED ESBER OUT AS ASHTON-TATE CEO

Ashton-Tate, maker of dBASE IV and other products, has been loping along at a slow pace in the last few years. Other database manufacturers have had no problem coming out with programs that are easier to use and faster than dBASE IV. Persistent bugs in dBASE IV have not been fixed a year after the product was released, and none of Ashton-Tate's other software products has been well received.

In the wake of these failures, Ed Esber, chief executive officer, chairman of the board, and president, resigned his offices and took the lesser job of vice chairman of the board. He had held the offices for five years. Esber is replaced by William Lyons, formerly vice president of the applications group.

Esber's failures were compounded by his inability to find good top-level help. He readily acknowledged that he was not very technical and that he did not have many program management skills. Unfortunately, he was not able to find others who had these important skills. Industry watchers felt that Lyons, a former IBM executive, would be able to surround himself with better managers.

INTEL SUES AMD FOR USE OF 80286 MICROCODE

Ah, lawyers.

Intel is again trying to harass AMD out of the microprocessor market by suing AMD over an agreement that was signed almost 15 years ago. AMD recently told Intel that it intends to use the microcode that Intel developed for the 80287 math coprocessor in AMD's own part, called the 80C287. AMD has the right to do this under a 1976 agreement between the two companies, according to AMD.

AMD's plans to make an 80287 clone have been common knowledge for more than a year. In April, AMD told Intel that they were about to start making the 80C287 part and that they would mark it with Intel's copyright since Intel wrote the microcode. Intel turned around and sued AMD and asked for an injunction against AMD, as well as damages.

The agreement between the two companies states that Intel gives AMD a royalty-free

NORTON UTILITIES MOVE TO UNIX

Peter Norton, famous for his do-all utilities for the IBM PC, announced that he will be porting the functionality of his utilities to various UNIX systems in the near future.

Norton said that the utilities will perform standard maintenance functions, such as changing directories through an interactive tree, and use some advanced features, such as undeleting files. He noted that not all features available on the PC would translate to all versions of UNIX, but he said that it was likely that many of the disaster-recovery programs could be at least partially implemented. Norton Utilities for UNIX are now available for Interactive System Corporation's V/386 and will be available soon for other 80286- and 80386-based UNIXes, as well as UNIX for Sun and Hewlett-Packard computers.

> **Norton noted that not all features available on the PC would translate to all versions of UNIX, but he said it was likely that many of the disaster-recovery programs could be at least partially implemented.**

Norton also admitted that its Norton Utilities for Macintosh program had significantly missed its ship date due to program and packaging problems.

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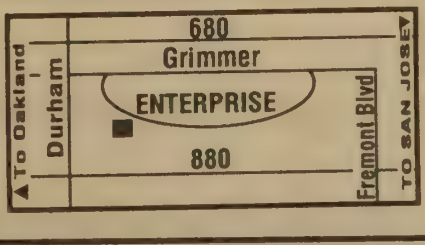


license to all Intel copyrights, permitting AMD to copies of the microcode contained in Intel microprocessors. Now Intel claims that the copies that AMD can make can only be used at AMD, not distributed to other people. Intel says that the agreement was made for AMD as a customer of Intel, not as a competitor. However, AMD has used the agreement to compete with Intel before without a problem. Intel is trying to forestall AMD from getting the rights to copy the 80386, which is also covered under the agreement.

Intel is clearly trying to get out of the agreement, which runs through 1995. By keeping AMD in court, Intel is keeping its rival out of the marketplace. The original agreement, renewed in 1982, was written to give Intel's customers assurances that there would be more than one source for Intel CPUs. Now that Intel is large enough to produce chips almost as fast as the market demands, it doesn't want the competition, so it is trying to keep AMD out of the market.

Many PC manufacturers complain that the 80386 is in short supply and, even if it weren't, it is grossly overpriced. If AMD were in the market, the price of the 80386 would certainly drop. This is, of course, also true of the 80287. A surprisingly small number of 80286 users have added 80287s to their systems, even though many use spreadsheets that could benefit from them. AMD could make these chips easier to obtain by dropping the prices.

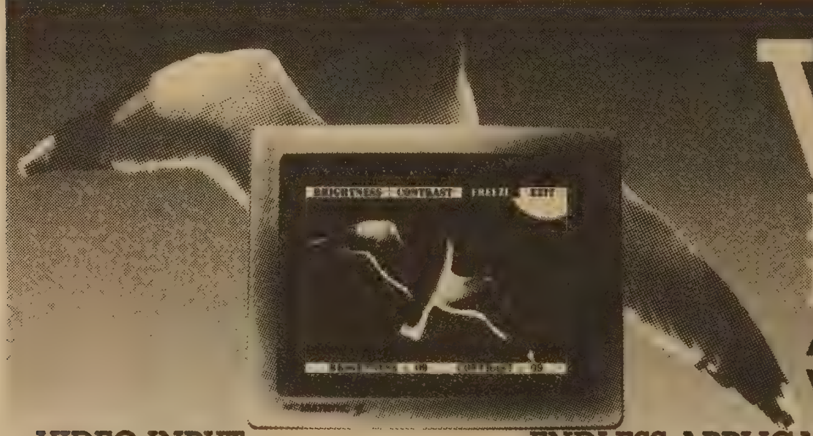
Many PC manufacturers complain that the 80386 is in short supply and, even if it weren't, it is grossly overpriced. AMD could make these chips easier to obtain by dropping the prices.

MICROCOMPUTER VENDORS DISAGREE WITH CHIP MAKERS OVER JAPAN SANCTIONS

Major groups of computer manufacturers have sent letters to US Trade Representative Carla Hills, asking her to ignore the efforts of the Semiconductor Industry Association (SIA) to punish Japan for dumping DRAM chips in the US.

The manufacturing groups have separately told US officials that any repercussions against the Japanese would make the current situation worse and that higher memory prices would make it much harder to sell computers.

In recent months, Japan has made efforts to open up many of its industry and consumer markets to American goods, although no one expects the trade imbalance to shrink significantly any time soon. The computer manufacturers are hoping that when the current semiconductor agreement expires next year, memory prices will stabilize at their current low rates and continue to fall so that users will buy more powerful machines.



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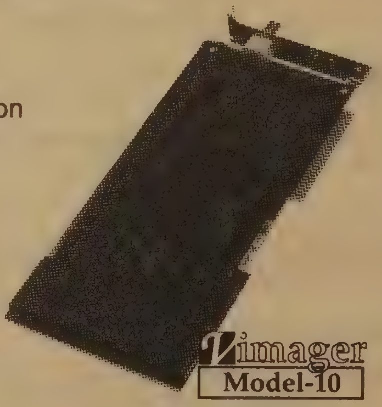

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THE COMPUTER INDUSTRY AFTER EARTH DAY

Smugness often sets in after a self-congratulatory event like Earth Day. We convince ourselves that we are indeed doing lots of things to help heal the earth. Yet most of us do lots of damage every day as we work.

The computer industry has done little to help reverse the problems that other industries have caused. In fact, many parts of the computer industry are major sources of groundwater and air pollution.

Many computer companies used Earth Day to help direct their employees to think about their environment. For example, Sun had an employee contest and awarded cash prizes for the best ideas of how Sun could help the environment. Winning suggestions included paper and plastic reduction, programs that help environmental planners, and so on. Other companies sponsored talks in workgroups about reducing trash and using more renewable resources.

> **The fondly held image of the paperless office has lulled many into thinking that micros have reduced waste in the workplace. However, studies show that companies that use computers generate more paper than those that do not.**

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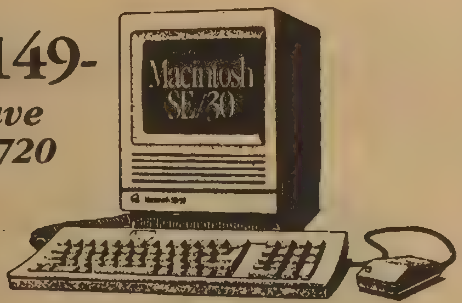

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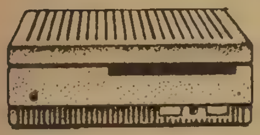

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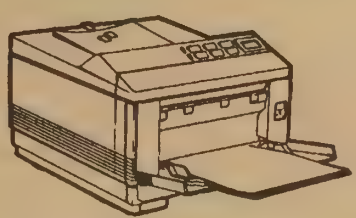

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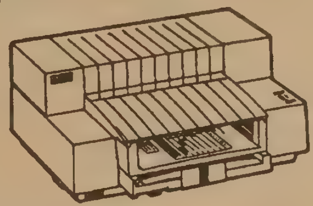

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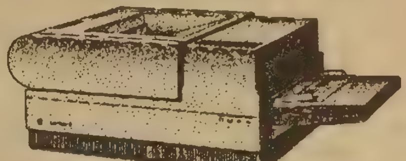

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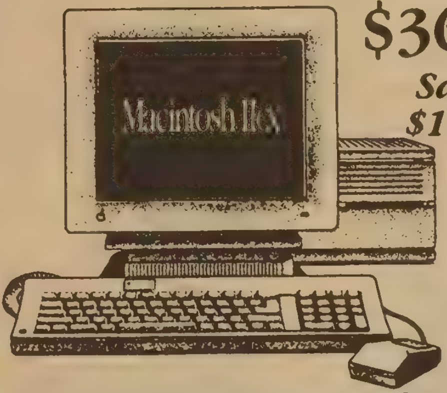

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LANDMARK = 43 SI = 31

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- 1 MB RAM On Board (384K Shadow RAM Included)
- 66 MB 23ms Hard Disk
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350 MB SYSTEM

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- Powermeter MIPS = 11.104
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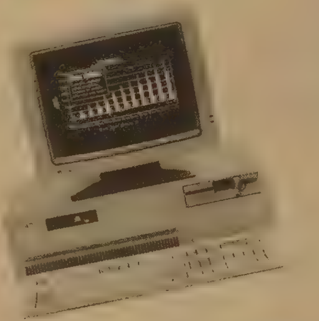

Hi-Q 20 MHz 386 SYSTEM

Landmark = 25 SI = 23

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- 1:1 Interleave Hard/Floppy Disk Controller
- 80387 Socket
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VERTICAL 386-33

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- Landmark = 58.5 SI = 45.9
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- Socket for 80387 Socket & Weitek Math Co-Processor
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- 2 Serial, 1 Parallel, 1 Game Port
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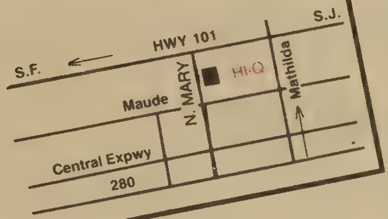
- Supports-MS DOS, OS/2, PC-MOS/386, UNIX, XENIX, DR, DOS, Concurrent DOS 386
- 64K Cache



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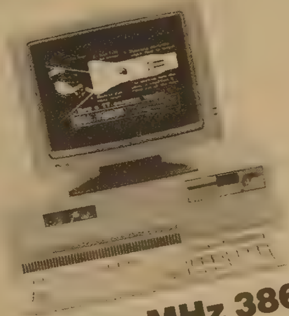

Hi-Q 16/20 MHz 386-SX
Landmark = 19.5 SI = 18

- 1 MB RAM Expandable to 8 MB On-board
- 1.2 or 1.44 MB Floppy Drive
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- 80387 Socket
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- Real Time Clock/CMOS Memory w/Battery Back-up
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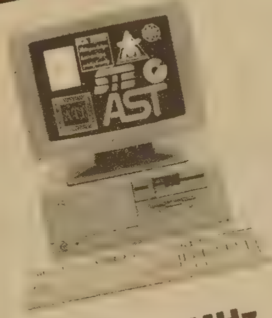

Hi-Q 12 MHz 286-AT SYSTEM
Landmark = 15.9 SI = 13.4

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- 1.2 or 1.44 MB Floppy Drive
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The paper used by dot-matrix printers and laser printers is considered to be high quality and is sought after by recyclers.

stored. Waste paper not only causes huge loss of forests, it also contributes to the problem of overfilled waste dumps.

Recent advances in laser printer technology have exacerbated the situation. In the last three years, prices on laser printers have dropped quickly and many more people have bought them. Since they are much faster and more convenient than dot-matrix printers, people use them to make more printed revisions of documents than they did before. When you knew that it would take an hour to print out a twenty-page document with graphics, you were much more likely to rely on print preview or guesswork. If it only takes a few minutes to print it out, it is much more likely that you will do so. The same technology advances that have brought down the costs of laser printers have also made photocopy machines cheaper and more widely used.

Since no one does their daily printing on newsprint, many people simply throw out the drafts and photocopies that they produce. Most cities, however, recycle newsprint and mixed paper. Although mixed paper does not bring as much money, it is a growing business for many recyclers. The paper used by dot-matrix printers and laser printers is considered to be high quality and is therefore sought after by recyclers. Computer paper is separated and recycled into other higher-quality paper products (as compared to items such as color inserts which must be bleached and usually make lower-quality paper). If you are now simply throwing out your unused output, you should look into mixed-paper recycling in your area.

A better alternative to mixed-paper recycling is to not use as much paper in the first place. Most major word proces-

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- Dual F/H controller
- 101 keyboard
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- 1.2 MB floppy drive
- Dual F/H controller
- 101 keyboard
- AT case and 200W p/s

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386-20

- L.M.: 25.6 MHz, SI: 23
- Intel 80386-20 CPU
- 1 MB RAM on board (exp. to 16 MB)
- 1.2 MB floppy drive
- Dual F/H controller
- 101 keyboard
- AT case and 200W p/s

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386SX-16

- L.M.: 20.6 MHz, SI: 18
- Intel 80386SX-16 CPU
- 1 MB RAM on board (exp. to 8 MB)
- Dual F/H controller
- 101 keyboard
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- L.M.: 25.6 MHz, SI: 23
- C&T chip set
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- Intel 80286-16 CPU
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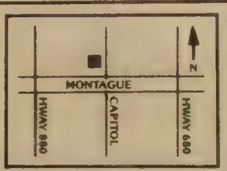

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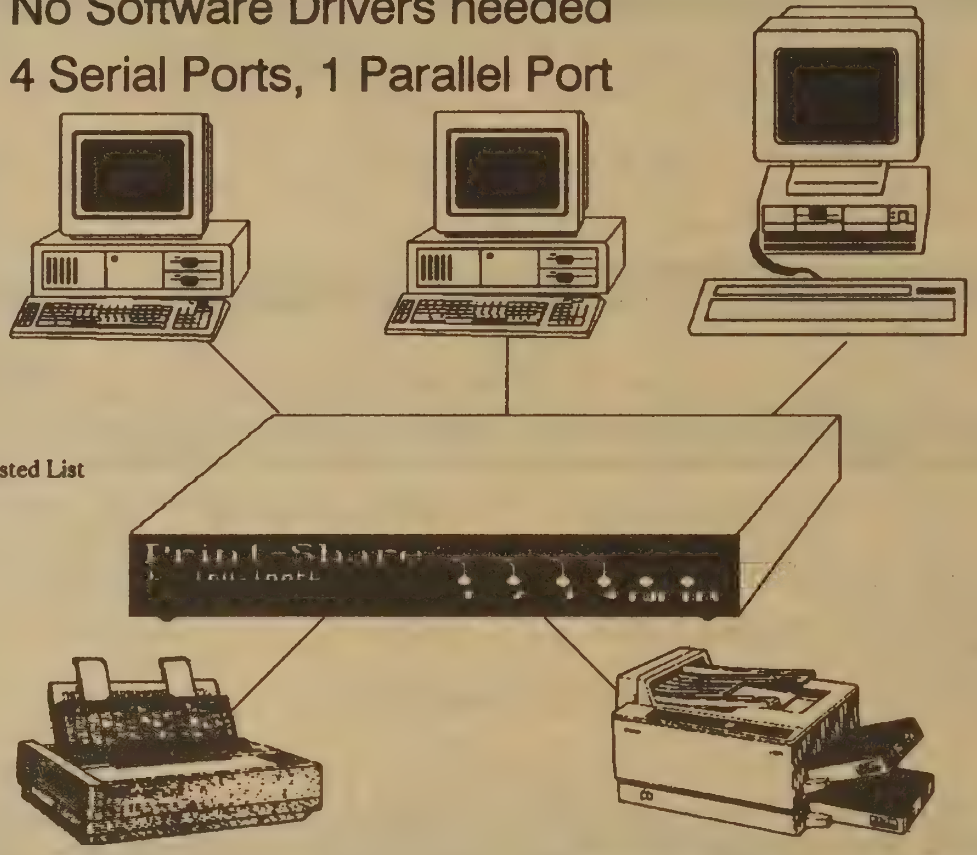

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If you must use paper, you can reduce your paper use by printing in a smaller type size. Most people use 12-point type, which is much larger than standard magazines or books. Simply reducing the type size of your documents can save a great deal of paper.

You can reduce your paper use by printer in a smaller type size. Most people use 12-point type, which is much larger than standard magazines or books.

Most laser printer users only print on one side of the page, leaving the other side blank. Although computer users rarely need much scratch paper, public schools do. Since most public schools in California are severely underfunded, teachers end up spending money out of their own pockets on supplies, including paper. Standard laser printer and photocopier paper that has only been used on one side can usually be run through a photocopier again. Many teachers use this type of paper for handouts and assignments that they would normally only print on one side anyway. White paper that has been used on one side is also useful for art projects and random scribbling. Donating paper that has been used one one side guarantees that it will be recycled one-for-one and lets the teacher spend resource money on other supplies. ■

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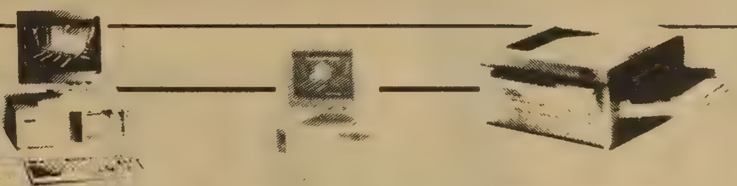

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STEP 386/20	24.3	4.9	32.8
STEP 386/16is	17.6	3.2	21.0
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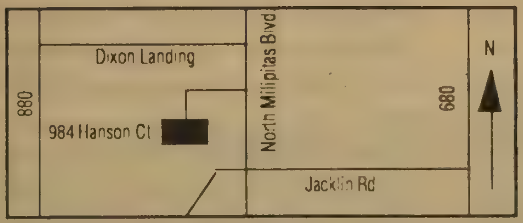

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LETTERS

VGA MONITORS: APPLES AND ORANGES

Thank you very much for your kind review of the Relisys 15" model 1520 super VGA color monitor in the article "Shopping For VGA" by Jim Meyer and Dan Burleson (issue #69). Although the review is fair, one important point was left out. The Relisys monitor is non-interlaced and the other monitors are interlaced, and that should have been noted.

To compare these monitors is like comparing apples with oranges. Your readers may be left with the wrong information regarding both performance and price. Interlaced monitors have a very slow refresh rate of 43 times per second. Non-interlaced monitors, on the other hand, have a refresh rate of 60 times per second. When the refresh rate is slowed, the monitor does not have to be as powerful; thus the cost is lower for interlaced monitors. And yet the Relisys monitor is attractive at half the price of its non-interlaced brethren.

> **"Non-interlaced monitors have a refresh rate of 60 times per second. When the refresh rate is slowed, the monitor does not have to be as powerful; thus the cost is lower for interlaced monitors."**

Amnon Rosen
Director, Sales and Marketing
Relisys

DATABASES: ANOTHER VIEW

I just read "Choosing The Right Database For Your Business" (#68). I can't believe you would publish an article with so much misinformation and such an illogical conclusion.

The most famous flat-file database, the one that's been around the longest and is still a best-seller, was not even mentioned. [Software Publishing's] Professional File started out as PFS File and PFS Report for the Apple II ten years ago.

Relational databases organize data by tables, flat-file databases do not.

PC-File and PC-File DB were discussed as two separate products, even though they are now combined into one product, PC-File 5.0.

The conclusion was that the obvious decision is to choose dBASE (sic). Dbase is near the bottom of most product reviews. Recently, *InfoWorld* magazine ranked Dbase II eighth and Dbase IV seventh of eight leading relational databases. Number one was [Borland's] Paradox, a product not even discussed in the article.

Robert J. Morrisette
San Jose

The article in question was concept-and-example oriented and made no claims to be exhaustive. However, we certainly meant no slight to any products, including the much-praised Paradox.

Ashton-Tate is surely having its troubles (see Industry Insight section), but dBASE has a formidable installed base and is unlikely to disappear as a standard any time soon.

As for the spelling, Ashton-Tate spells it dBASE....—eds.

INTERNATIONAL CONNECTIONS

I happened to come across your esteemed magazine from one of the computer users' groups in Singapore.

I am a sales executive with Harasani Computer Systems, based in Singapore, which exports high-quality and low-cost computer parts, accessories, peripherals and microcomputers manufactured in Singapore to the world at competitive prices.

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We would like to establish contact with computer users' groups in America who intend to import/export microcomputer products or parts from/to Singapore.

We also welcome any enquiries and offers from individuals and organisations. Any enquiries or offers can be addressed or faxed to me.

M.A. Kassim
Sales Executive
Harasani Computer Systems
Blk 201E Tampines Street 23
#04-108 Singapore 1852
Fax: 7844410

DOES MCDONALD'S HAVE THE BEST HAMBURGERS? AN AMIGA LOVER STRIKES BACK

I just wanted to add my comments to Sonny Shrivastava's letter in your April edition.

Mr. Shrivastava's basic position seems to be that "more popular" is better, and he conveniently includes PC users in his support. If he is right and "more" really is better, then he better sell his Mac and go out and buy a PC, because PCs outnumber Macs by a dominating margin. Mac users do their own share of PC bashing, and it is funny to see them include PCs in their arguments when it suits their needs.

The Amiga is a fun computer! I get tremendous enjoyment in creating music, doing animations, sampling sounds, digitizing and modifying art, and other fun things. It truly is the computer for the creative mind and the best home computer you can buy. For businesses, "fun" is probably not on the top of their priority list, but the Amiga can also do word processing, spreadsheets, video, desktop publishing, etc., as well as the best of them.

More is not always better, more popular is not always better. Does McDonald's have the best hamburgers? I do not believe that any Amiga user really believes that Amigas will overtake PCs as the dominant personal computer (but number two would not be bad). For me, the Amiga is just the best com-

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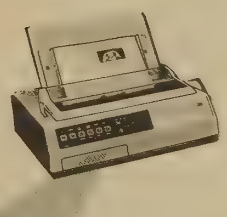

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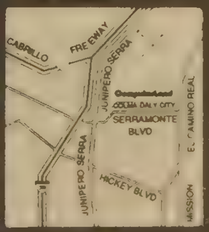

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puter around at any price—period. And you can always add the PC bridgeboard and/or A-Max hardware and have the best of all three worlds.

Douglas J. Nakakihara
Simi Valley

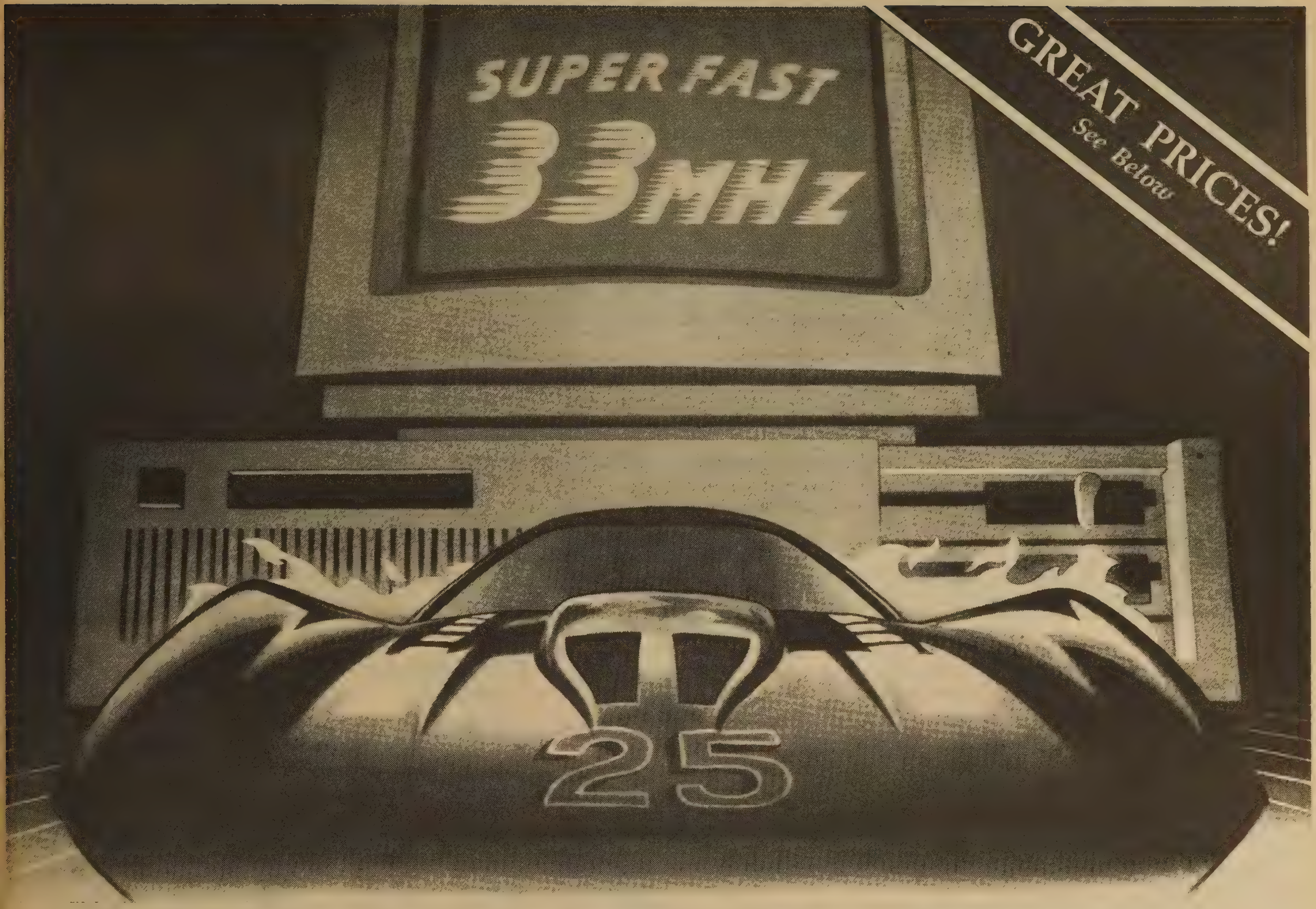
Beyond Religious Wars

Obviously Mr. Shrivastava is very sour about his experiences. I'm sorry. What is a pity is that this seems to have resulted in an evangelical need to convince all potential buyers of their folly in considering such an evil machine. I believe such a goal to be very harmful, because it is quite obvious that there *are* a lot of very happy Amiga users out here in the real world.

Any prospective buyer of a computer should carefully consider, as best they can, what they intend to use it for. And then investigate for *themselves* all the possible machines on that basis. A few days ago I spent a very interesting half hour talking to artist Pepe Moreno, whos graphic novel *Digital Justice* has just been published. He uses a Mac II for his work—and needs it, because of the demands of published art—but when someone asked him whether they should buy an IBM, Mac, or Amiga, he unhesitatingly recommended the latter as more flexible for this person's purposes. (I don't think I need repeat his opinion of IBM!)

So thank you, *MicroTimes*, for your continuing coverage of a wide range of machines. Keep it up, and let's put this silliness to rest.

Pete Goodeve
Berkeley



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- S VGA SYSTEM: $3395

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Fair Profits For Programmers, Amiable ATMs & Fruitful Fiction

BY JIM WARREN

REALIZABLE FANTASIES

Innovative programmers often have a problem: They are usually not equally talented in business.

Many programmers have some great product ideas, and the ability to implement them. Many are willing to make the all-consuming investment of time, talent and energy needed to implement valuable creations.

Many would accept subsistence-level income while creating their products—*If* they could retain ownership, or at least reap a significant percentage of the profits from their creations.

However, to reap substantial rewards from their innovation, they usually must build all the financial and business structures to manufacture, promote, market, distribute and support their products. Most programmers are not trained, or experienced, or inclined to deal well with "the suits," the "vulture capitalists," the marketroids, and the endless hassles of creating and running a business. Nor is such effort a productive use of software wizards' time and energies.

Sadly, most technical innovators end up continuing to accept wage-slaves' simple salaries, and perhaps some small stock options, while originating products of great value for their employing corporations, which take the vast majority of the profits of the innovators' creativity.

On the company and manager side of the issue, there are employee problems related to burn-out, one-shot innovation, seniority, escalating benefits, managing creative talent, etc..

Copyright © 1990 by Jim Warren. All rights reserved. Jim Warren founded InfoWorld, *the DataCast proposal for broadcast-based paperless electronic newspapers, Video Initiative, Wireless Digital, Initiative, Inc. and the nation's largest public microcomputer convention. He was founding host of PBS television's "Computer Chronicles" series, founding editor of* Dr. Dobb's Journal, *founding President of the Microcomputer Industry Trade Association and has chaired various computer professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.*

LET'S HAVE PROGRAMMERS' AGENTS AND A SOFTWARE WRITERS' GUILD

Bob D'Orazio of Scotts Valley came to me with a fascinating proposal. Let's create a Software Writers' Guild, modelled somewhat after the Screen Writers' Guild. I think Programmers' Agents could be even more useful. Consider the analogies between computer programmers and screenwriters in the more mature movie and TV industry:

Screenwriters often operate as independent authors. They receive significant percentages of the profits from their creativity. Proven innovators often receive substantial cash advances to support them while they create new scripts. Screenwriters can usually concentrate on what they do well—originating exciting, valuable creations.

They *don't* usually waste their time rounding up investors (known as "angels"), nor waste time producing the product (done by studios or production companies). They certainly don't waste time marketing and distributing the results of their creativity, other than, perhaps, assisting its promotion by appearing on talk shows, etc.

Further, screenwriters usually don't even hassle with searching for and negotiating with the production companies. That's done by agents, who specialize in search and negotiation, usually working for a percentage of what the writer receives, and talented at optimizing that income. (The book-publishing industry has authors' agents performing similar functions.)

The Screen Writers' Guild jumps in where group effort is needed by these otherwise-independent artists, e.g. concerning contractual and legislative issues affecting screenwriters' interests.

This proposal seems eminently worth pursuing; our industry is mature enough for it. Call Bob at (408)439-8556 and discuss it with him. (Note: If I remember correctly, the movie organization is actually called SWAG — the Screen Writers & Actors Guild.)

ATMS SHOULD PERFORM MULTI-CARD TRANSFERS

Lotsa folks maintain multiple bank and chargecard accounts. Most Automated Teller Machines now accept multiple cards, at least accepting one bankcard and several chargecards.

But I'm told that with some banks one must endure a float of at least a day to electronically transfer funds from one account with one financial institution into another account in another financial institution (*e.g.* a chargecard), even when it can all be accomplished via a single ATM.

Sez Oakland's Mary Eisenhart, ATMs that already perform electronic funds transfers for multiple institutions should facilitate such transfers without forcing delays while loot floats through intermediate accounts. Sez I—*Yup!*, just a "simple matter of programming."

SOUND FAMILIAR?

"I have too much to do"—so I don't read much fiction any more; just technoid stuff, plus usually infuriating political news.

But as a Child Nerd, I read fiction and nonfiction—lots of it. (In 1950s Texas, one *needed* escape literature.) Then came the frenetic, idealistic chaotic hippie '60s in the San Francisco Bay area (actively shared by an amazing number of people who later became leaders

> **Most programmers are not trained, or experienced, or inclined to deal well with "the suits," the "vulture capitalists," the marketroids, and the endless additional hassles of creating and running a business. Nor is such effort a productive use of software wizards' time and energies.**

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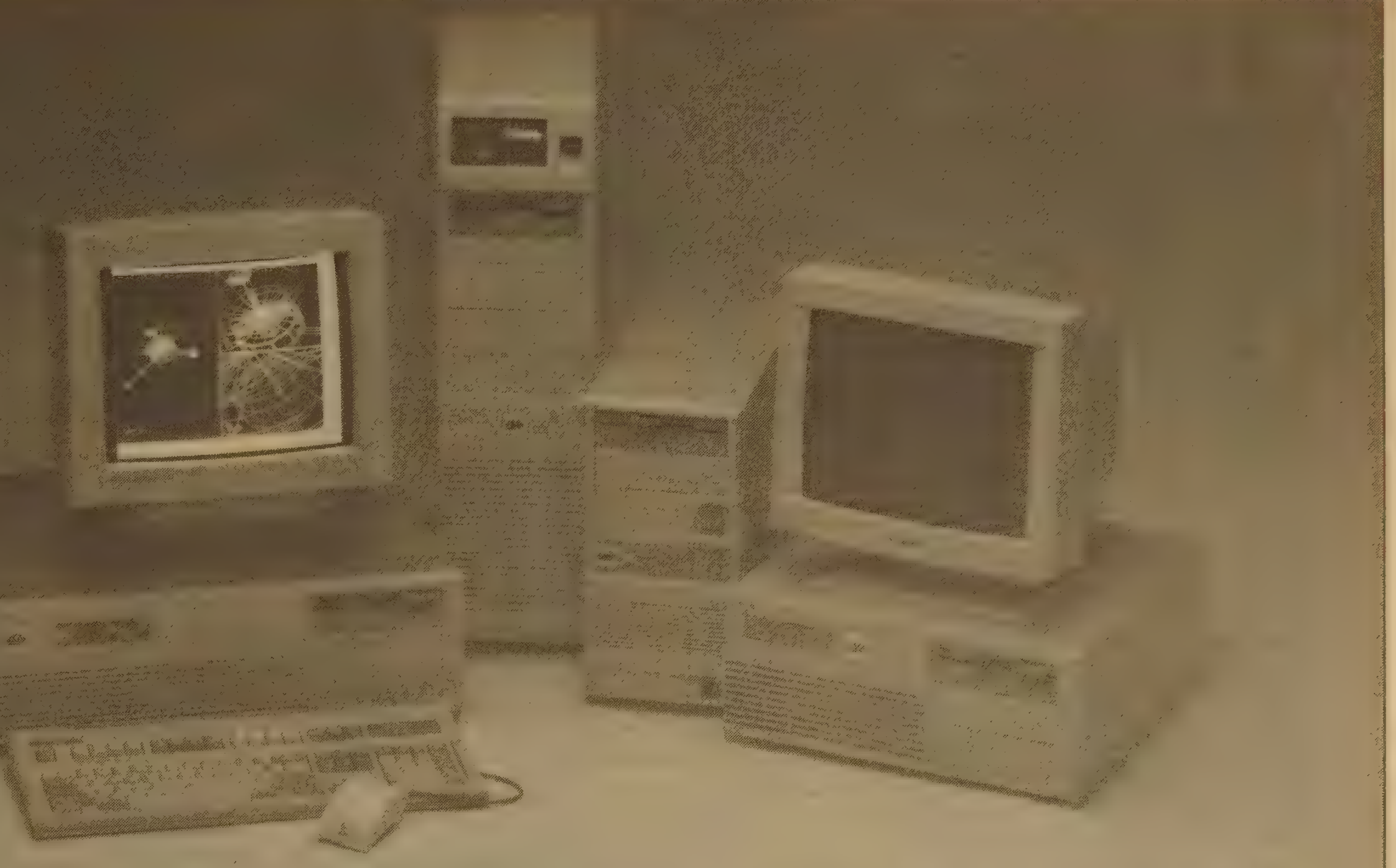

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w/80 MB Hard Disk (18 ms/AT-IDE)	$1,849	$1,949	$1,999	$2,074	$2,299	$2,349	$2,449
w/105 MB Hard Disk (18 ms/AT-IDE)	$1,949	$2,049	$2,099	$2,174	$2,399	$2,449	$2,549
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w/340 MB Hard Disk (16 ms/ESDI)	$5,599	$5,699	$5,749	$5,824	$6,049	$6,099	$6,199
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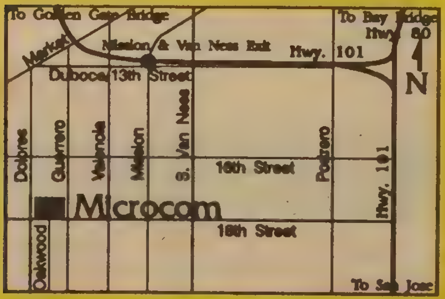
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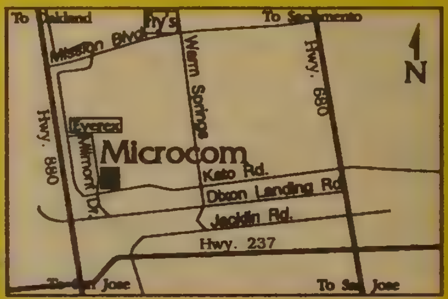
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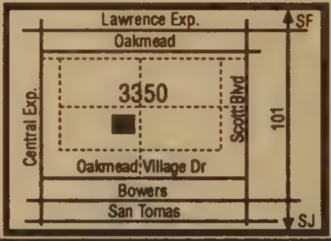

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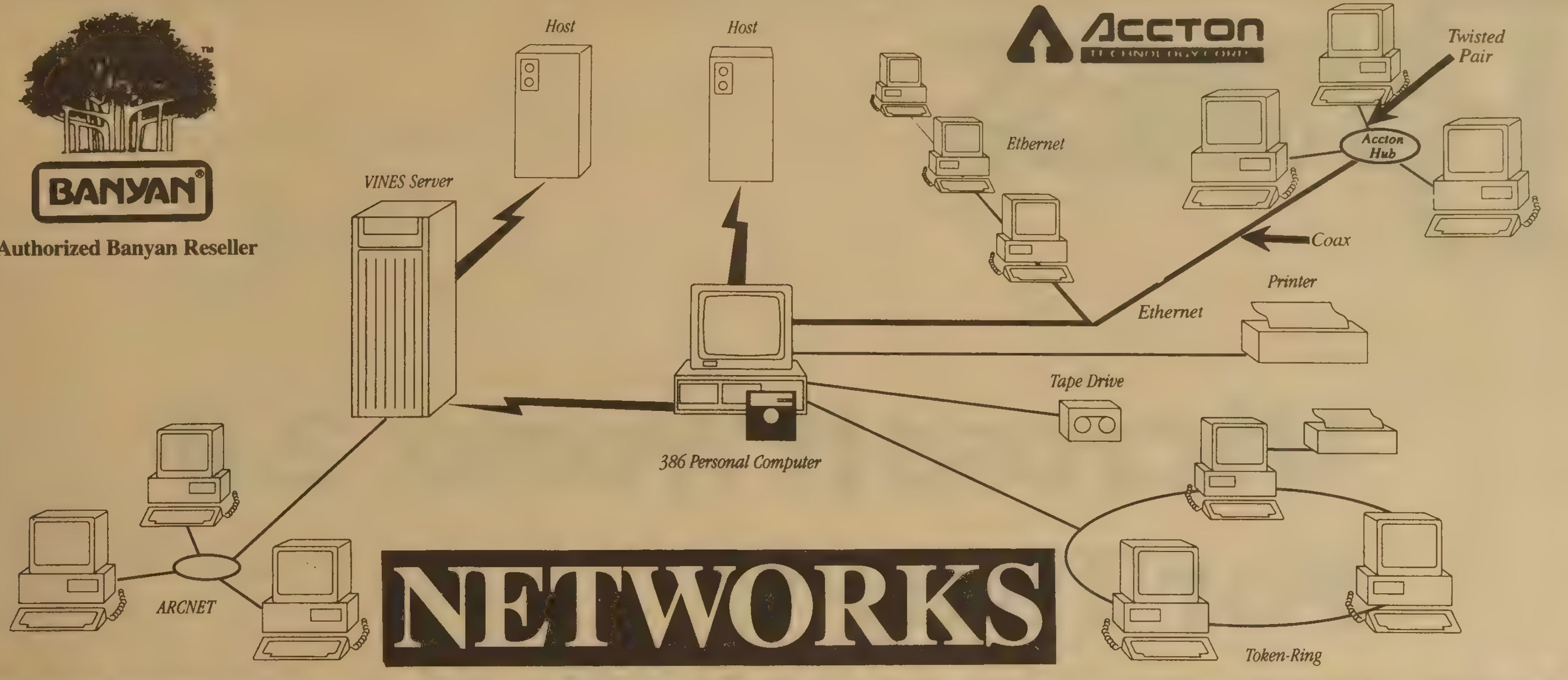

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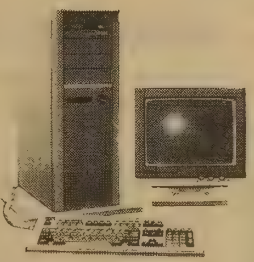

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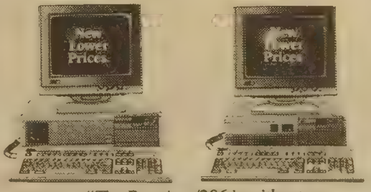

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PC MAGAZINE FACT FILE

EDITOR'S CHOICE

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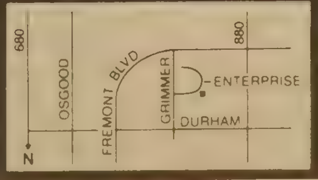

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BUSINESS SOLUTIONS

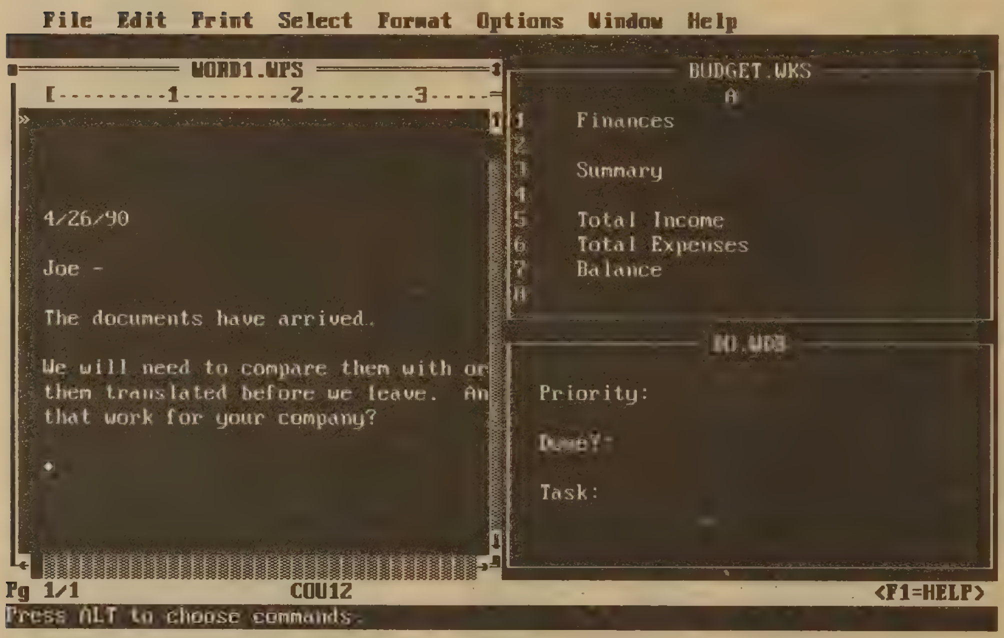
Microsoft Works 2.0 For The PC

Swiss-Army-Knife Software For The Business User

BY BIRRELL WALSH

Microsoft positions Works 2 as an all-in-one solution, and you might well use it as your only program. The software gives you a word processor, a database, a spreadsheet, a communications program and, now, a chartmaker. You could do a great deal with no other program on your machine. I have seen a fair-sized mail-order business operated with nothing but Works.

Since the street price is usually $100 rather than the list $149, you can cover all your basic software needs for less than most standalone programs cost. I, on the other hand, already have a lot of software lying around; I keep Works 2 on my hard disk because it has too many uses to give it up.



```
File  Edit  Print  Select  Format  Options  Window  Help

WORD1.WPS
[---------1---------2---------3-----

4/26/90

Joe -

The documents have arrived.

We will need to compare them with or
then translated before we leave.  An
that work for your company?

BUDGET.WKS
       A
1   Finances
2
3   Summary
4
5   Total Income
6   Total Expenses
7   Balance
8

DO.WDB
Priority:

Done?:

Task:

Pg 1/1            COU12                 <F1=HELP>
Press ALT to choose commands.
```

Works integrates a number of tasks effortlessly.

DATABASE MODULE

The database, for instance, is a serviceable flat-file module. It is easy to construct a new database, easy to design (and preview!) reports, easy to mail-merge. I keep all of my business income and expenses in Works 2. I use it because I can create a new report in less than 20 minutes.

The report design is simple and flexible: you can use one report as the basis for another, or design from scratch. All the font and format controls from the word processor and the spreadsheet are available for you to use within the report designer. You can have multiple fonts, boldface, and left-, right- and center-justification. The Works database understands mailing labels (as many databases do not) so you can quickly print them out in side-by-side format. It is just the sort of casual database we all need part of the time, and that we don't want to spend hundreds of dollars to obtain.

WORD PROCESSOR

The word processor is good: it has on-screen formatting, font control, a thesaurus, a spell checker, and headers and footers. I am addicted to Symantec's GrandView, the outliner to end them all, but I come back to Works 2 to write letters. It has excellent font control and allows me to store my letterhead as a template. It also serves as the document half of Works 2's mailmerge facility.

The printer control is better than in many word processors. Before I got Works 2, developing an envelope printer had taken hours of unsuccessful labor with my nose in the Hewlett-Packard LaserJet handbooks. In Works, it took 25 minutes of fiddling to make one template for short envelopes and one for long.

SPREADSHEET

I don't have a resident spreadsheet that I use every day. But if I need one, Works 2 has a Lotus-compatible worksheet. Because it is compatible with Lotus 1-2-3, I can import and export standard spreadsheets for others to use. It will not import or honor Lotus's extensive macro language (although it has one of its own).

But for most simple business uses, the Works 2 spreadsheet is fully adequate. It has numerous financial and statistic functions, table-lookup, and a full set of formats for its text and numbers.

CHART

The chart function in Works creates charts which can be integrated into your Works 2 word processing documents. You can select sections of the spreadsheet to chart, and then choose any of a variety of chart styles to represent the data. You can make the traditional pie chart and bar charts. You can also create multiple line charts, double y-indices, and different markers for different groups of data. You can use high-low spans, to chart (for instance) high and low stock prices or temperatures on a certain day.

Works considers the charts to be a view of the spreadsheet information, so charts change automatically if you change the data. The hot-

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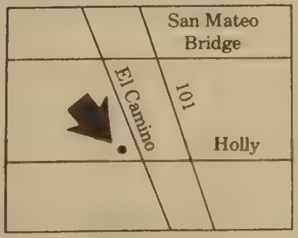

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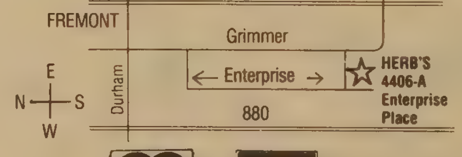

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link works even if you include the chart in a word-processing document.

OTHER FEATURES

Works has a solid, though simple, macro recorder. You can record sequences of keystrokes, and include pauses in them. Those pauses may be for a time-interval, or for fixed or variable-length input. You can even nest a macro definition. The user can type in data which Works will then "play back" at a number of different locations. The macros are able to work across all of Works 2's modules, so you can move data among databases, spreadsheets, and word processor documents with a single macro.

> You could do a great deal with no other program on your machine. I have seen a fair-sized mail-order business operated with nothing but Works.

The communications facility is adequate. I would call it quite sufficient, but it hangs occasionally when it encounters the WELL. The WELL, Sausalito's arcane and illuminating bulletin board, will defeat communications software if it can be defeated. Works 2 occasionally scratched its head and refused to go any further after its first dialing attempt. With more pedestrian connections, like CompuServe, the software signed on without problems the first time.

So what *don't* you get with Works 2? The far reaches of each software category. The database is not relational. The word processor does not handle columns and cannot embed graphics, other than charts from the Works 2 spreadsheets. The macro language does not make conditional branches. In most cases you don't need what Works doesn't have.

It's the little things that make software usable and pleasant. Microsoft seems to have listened to the many users of Works 1 in designing Works 2. The user can choose whether to work in text or graphics mode—in graphics mode you come much closer to seeing on screen what you will actually get when it is printed. The full-screen preview allows you to see how a chart or a document will look when you print it, which saves you a lot of paper and aggravation. You can open many windows on the screen at once (tiled, overlapping or stacked windows, as you choose), and cut and paste among them.

If you are a beginning user or a laptop owner, Works 2 will appeal to you as an integrated solution. If you already own a lot of software, you may buy Works for the convenience of having an all-in-one tool on your disk. ■

> I'm addicted to Symantec's GrandView, but I come back to Works 2 for letters. It has excellent font control and allows me to store letterhead as a template.

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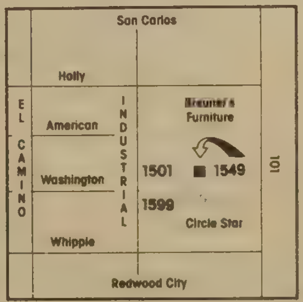

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BY WAYNE A. YACCO

LOCAL AREA NETWORKS

This month we continue our look at low-speed LANs with an entry that's really one of the faster performers in its field. TOPS is perhaps best known for Macintosh connectivity and for bridging between PCs and Macintoshes. My network, composed strictly of PCs, is perhaps atypical. However, the FlashCard from TOPS provides AppleTalk compatibility for the PC (FlashTalk actually) without the need for a Mac.

Not that I have any objection to the Macintosh. In this case, not having a Mac is not a disadvantage, though, because TOPS is a company that cares about people using both platforms.

MULTIVENDOR NETWORKING WITH TOPS

For the Mac, FlashCards provide faster data transfer than the Mac's standard physical layer. FlashTalk's 768,000 bps is three times faster than AppleTalk's 230,400 bps. For the PC, it is a little slower than some of the alternative proprietary systems such as LANtastic. However, it is an uncomplicated, easy-to-administer system, and a favorite of those who want simplicity. There is something appealing, and unthreatening, about its slim little manuals—especially since they manage to tell the whole story.

For connectivity among Macs or among PCs and Macs, FlashTalk is probably the best solution short of Ethernet (which is also available for TOPS).

In addition, FlashTalk can communicate with TOPS/Sun. TOPS/Sun turns a Sun workstation into a non-dedicated server, with support for printing from the Sun to AppleTalk printers and for accessing NFS file systems from a Sun NFS gateway. Such a gateway can be used to access data on DEC, Hewlett-Packard, Apollo, Cray, NeXT and about 150 other systems supporting NFS files.

For many users, the greatest advantage of TOPS will be the twisted-pair wiring that this system uses. FlashTalk is designed to share the ordinary telephone wiring already in place in most businesses. FlashTalk uses a daisy chain or bus topology; so, one twisted pair is required to, and another from, each node. FlashTalk TeleConnectors use the outer pair of wires in a standard RJ-11 connector, the unused pair in a single-line installation. Whether existing cable is used or new cable laid down, twisted pair is the least expensive and easiest-to-use hardwired alternative available.

FlashTalk recognizes AppleTalk and automatically reduces its speed to communicate at the correct rate. But TOPS also offers a device called FlashBox. FlashBox plugs into AppleTalk and allows it to work at the higher FlashTalk rate. You can also use a gateway such as the Kinetics FastPath to connect TOPS TeleConnectors to an Ethernet network. Thus, in larger organizations, FlashTalk can be used in suitable applications and joined to other networks where higher performance is required.

Copyright © 1990 by Wayne A. Yacco. All rights reserved. An editor, writer, and consultant specializing in microcomputers and their business applications, Wayne Yacco writes articles, columns, and reviews for many trade and business publications. He can be reached at Box 269, Burbank, CA 91503.

INSTALLATION

Installing FlashCards is fairly simple. There are three sets of jumpers that configure an interrupt, an I/O (input/output) address, and a DMA channel. There are two choices for interrupt, three for addresses, and two for DMA. (The second direct-memory access channel is applicable only to AT-class machines.)

In addition, DMA can be disabled. Disabling DMA eliminates the high-speed advantage of FlashTalk and forces the network to run at AppleTalk's standard rate. However, this can be required in several cases. DMA conflicts can arise in the presence of tape backup or other devices. Also, DMA can not be used with the EMS (expanded memory) drivers necessary to provide the new generation of graphical interfaces with acceptable performance. With some limitations, it is possible to run TOPS in extended memory on 80286 and 80386-based machines.

Installation for system 3.0 is automated by the TSETUP program. TSETUP also installs the network software, TOPS/DOS. Unfortunately, this process is flawed. If you are in-

> **For many users, the greatest advantage of TOPS will be the twisted-pair wiring that this system uses. FlashTalk is designed to share the ordinary telephone wiring already in place in most businesses.**

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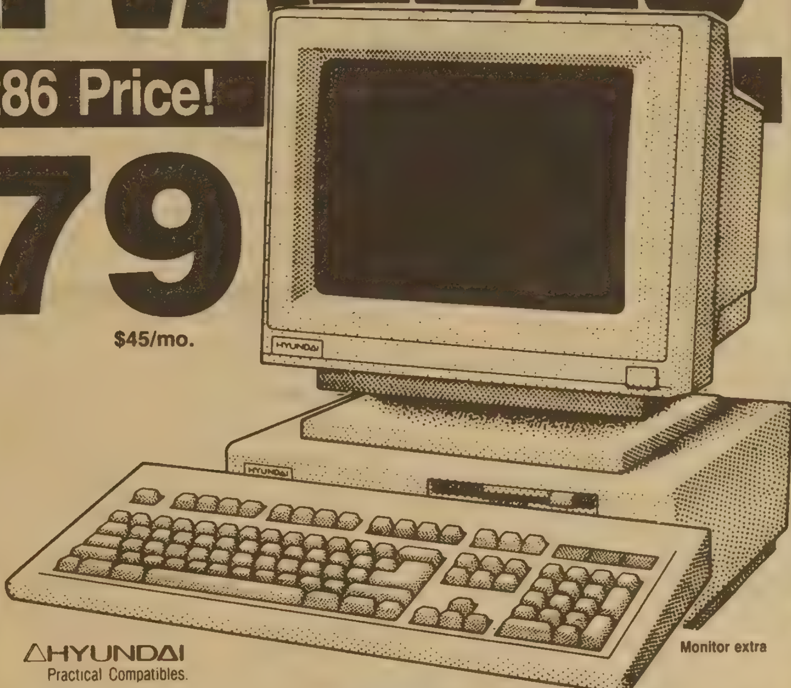

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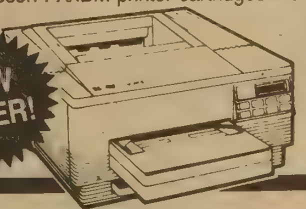

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stalling system 3.0 from 3.5" disks, you must ignore the disk numbers in the interactive instructions and insert disks in their numerical order.

A floppy-only-client installation is sometimes intolerant of very slight errors and offers no opportunity to recover. If you merely insert the wrong diskette, installation can fail and you must restart from the beginning. Discrepancies in the user manual make it difficult to determine which disks are required for a floppy-only system.

Other than minor difficulties with the installation, working with TOPS is easy. TOPS/DOS menus are simple to follow, though not graphical like the Mac equivalent. TOPS is simple to configure because it lacks elaborate privilege levels and security features. Unsophisticated passwords and read-only mode are provided, and the system supports applications with standard file and record locking. It is a system suited to installations which have minimal concern for access control.

Configuration is busier than for some other LANs. Not only the server must be configured to make volumes accessible; each client must also be configured locally before it can access a volume. TOPS is a peer-to-peer network and each workstation can act as server, client or both. The server can be specially configured as a PC-only network to save memory. In addition to the TOPS/DOS software, each network bundle includes a complete InBox electronic mail system.

TOPS offers a 90-day warranty on its software and a one-year warranty on its hardware, with the exception of its cabling. TOPS Cables and TeleConnectors, tellingly, are not only sold "as is," but the limited warranty also disclaims its warranty of merchantability—a disclaimer of questionable legitimacy in many states. That goes to show how critical and troublesome all cabling, not just TOPS cabling, is.

CONCLUSIONS

If your system's traffic loads are moderate, if you need a network that's easy to install, manage, and maintain, if you need connectivity in a heterogeneous environment, if you need a low-cost solution, you should definitely consider TOPS. It could wind up tops on your list. ■

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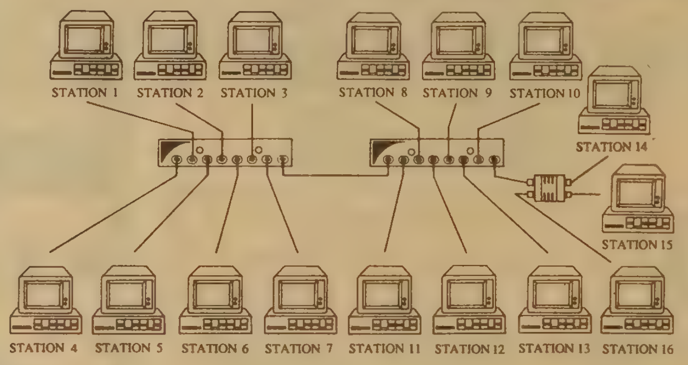

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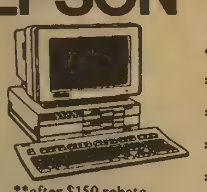

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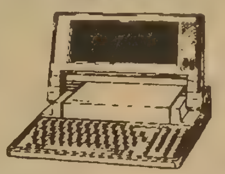

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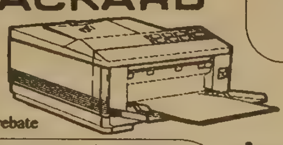

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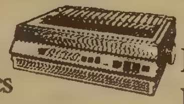

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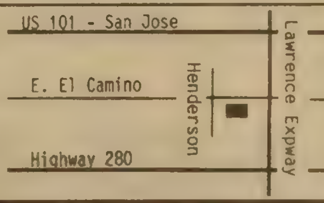

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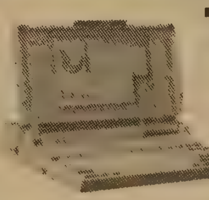

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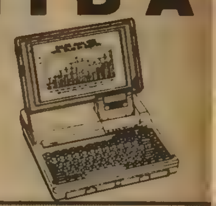

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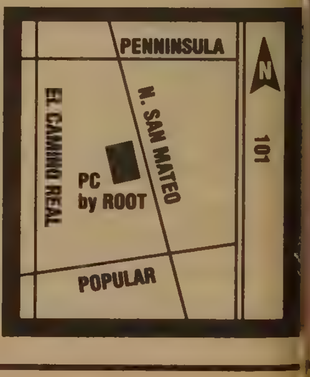

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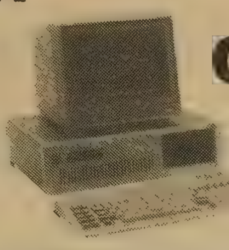

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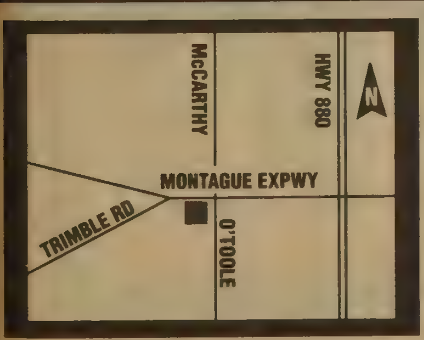

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X And SCO's Xsight

Window-Based Interface For Multivendor Networks

BY BENNETT FALK

UNIX

Developed at MIT, the X Windows user interface software has received a lot of publicity, and probably a lot less understanding. In the best UNIX tradition, X Windows is a portable graphical user interface that directly addresses the problems of using workstations in a heterogeneous network.

GUI—THE BUZZWORD FOR OUR TIME

"Graphical user interface" is one of the great buzzwords of the contemporary computer marketplace. Loosely speaking, it designates a user interface based on discrete windows in which either text or images can be displayed. Typically the user can access the windows more or less randomly, using a special device (a mouse, trackball, or lightpen) for selecting objects on the screen and moving them about.

The audience for graphical user interfaces is divided a little oddly. On one hand, GUIs are popular among experienced computer users on workstations: the GUI provides a handy way for a knowledgeable user to do a number of things at once and monitor them all on a visually pleasing display.

On the other hand, GUIs are popular among people who want to use a computer without having to learn anything in advance. A carefully constructed GUI can give these novice users an intuitively satisfying representation of the programs, files, and directories to which they have access.

Traditionally, graphical user interfaces have been intensely hardware dependent. Among UNIX workstations, this usually means that the user interface tools are built into the operating system kernel. This approach has serious drawbacks: kernel-based user interfaces tend to support only one graphical user interface per computer, and programs that use this sort of graphical interface don't usually work across a network.

Copyright © 1990 by Bennett Falk. All rights reserved. Bennett Falk lives in the Bay Area, writes when he can, and hopes for the best. He works for Sybase, but the opinions and attitudes expressed here are his own.

X WINDOWS—A HARDWARE-INDEPENDENT SOLUTION

X Windows brings much of the user interface capability out of the operating system kernel into a "display server" that runs as a single process, manipulating the display the user sees and exchanging information with various client processes that need to do something with the display.

The client programs are created using a library of functions (known as "Xlib") to tell the X server what to do with the display under its control. Communication between X clients and servers is handled by a special X system protocol and usually takes place over a network. With the X architecture, client programs and servers need not run on the same computer; indeed, clients and servers may run on computers with different architectures.

YES, BUT...

Conceptually this is all very fine, but a user's first exposure to an X system is likely to be disappointing. The disappointment arises from the fact that what MIT distributes is a library of low level display functions and a collection of demo programs to show off what an enterprising programmer can do with Xlib. The X architecture leaves most of the decisions about the actual appearance of the user interface to the programmer.

Consequently there is a brisk market for "higher level" products that use the X windows tools to implement a specific interface design. Usually the interface design comes as a set of window gadgets, or "widgets," that can be used to give a certain look or feel to the windows. Indeed, one outcome of the corporate wars fought over UNIX in the last three years is the endorsement of X Windows by the Open Software Foundation (IBM, HP, DEC, and their cohorts) and the development of "Motif," a window manager and a set of widgets to implement a user interface standard for UNIX. (AT&T and Sun have a rival interface standard called "Open Look.")

Even a widget set is not a very satisfying thing for a user because it is still basically a developer's tool. The widgets do embody some policy decisions about what windows should look like and how they should behave, but the widgets themselves are not really a full-fledged user interface.

SCO'S XSIGHT—A NEW LEVEL OF X

At a slightly higher level, there are products like SCO Xsight. Xsight is a version of the X Windows user interface produced by Locus Computing and marketed by the Santa Cruz Operation for SCO XENIX and SCO UNIX.

There are two Xsight products: a development system for constructing new X Windows client programs, and a runtime system that includes an X Windows server and assorted clients. The development system doesn't contain the runtime system, so developers will need both products.

In the best UNIX tradition, X Windows is a portable graphical user interface that directly addresses the problems of using workstations in a heterogeneous network.

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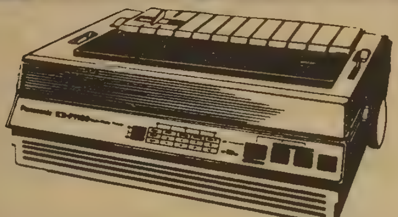

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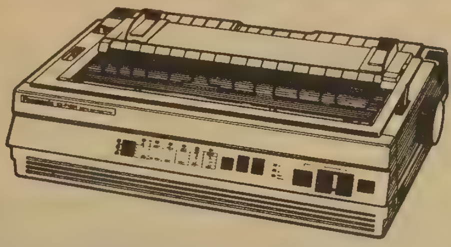

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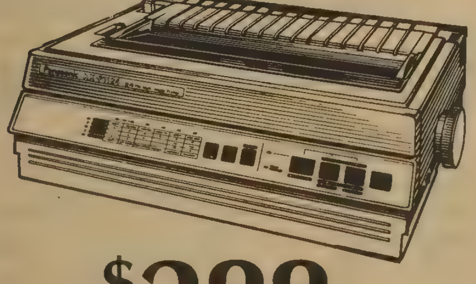

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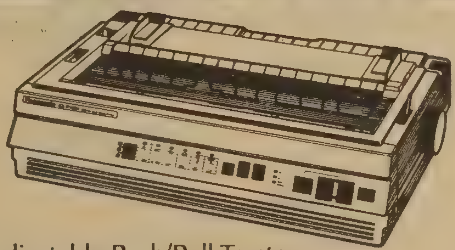

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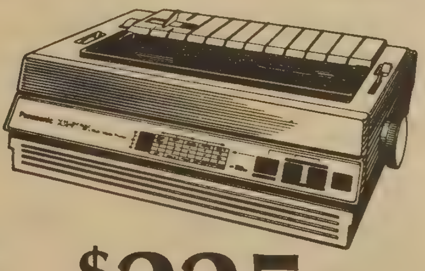

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The Xsight runtime system consists of a display server, a Motif window manager, and a number of client programs to do useful things. There are also utilities to manage X Windows' configuration. The Xsight runtime system is essentially an off-the-shelf graphical user interface that can be plugged into any appropriately configured SCO UNIX or SCO XENIX installation.

The Motif window manager is a joy to use. The windows come up in pleasing colors with frames that have a vaguely art deco, "carved in granite" look. One nice feature of Motif is that the icons for any active clients are collected in a window reserved for the window manager. (Other window managers allow icons for active clients anywhere on the desktop.)

One outcome of the corporate wars fought over UNIX in the last three years is the endorsement of X Windows by the Open Software Foundation (IBM, HP, DEC, and their cohorts).

Xsight also includes a filesystem manager called Xhibit that runs in a desktop window, an X client named "xdt". The desktop window provides icons for basic operating system functions like electronic mail, editing, printing, reading the manual, and system administration. It also provides a window-and-icon based representation of directories and their contents.

SCO UNIX Revisited

Some friends suggested that the recent benchmark of SCO UNIX published here might not show that product off to its best advantage. The earlier benchmarks were run on a 16MHz Wyse 386 with 2 Mb of RAM. SCO UNIX will run with 2 Mb of memory, but it won't run happily. SCO recommends running the system with at least 3 Mb of memory.

When the memory on the Wyse was upgraded to 6 Mb last month, I took the opportunity to benchmark SCO UNIX again. With additional memory, the performance of SCO UNIX improved dramatically on the compilation and the multiuser tests. Clearly the additional memory allowed the operating system a good deal more I/O optimization than was possible in the 2 Mb test. The differences were less striking on the tests that exercise only disk reading and writing, but there was still a modest improvement. The CPU intensive tests were least influenced by the addition of memory. The results of both benchmarks are reproduced in the table below.

SCO UNIX is simply designed for a more generous hardware configuration than XENIX was designed for, and using it outside the range of configurations for which it is intended may affect performance adversely.

—Bennett Falk

TABLE 1: COMPILATION

	SCO XENIX 2 MB)	SCO UNIX (2 MB)	SCO UNIX (6 MB)
Compiling dwrite.c			
	4.76	14.55	5.7
	1.11	1.25	1.19
	1.39	2.34	1.42
Compiling dread.c			
	3.4	12.64	4.97
	1.11	1.28	1.25
	1.12	2.17	1.35
Compiling fcalle.c			
	2.81	11.4	3.99
	0.7	0.57	0.54
	0.99	1.94	1.17
Compiling fcalla.c			
	2.62	10.86	4.04
	0.57	0.45	0.46
	1.03	1.93	1.13
Compiling loop.c			
	2.83	11.73	4.41
	0.65	0.61	0.57
	1.07	2.02	1.32
Compiling pipes.c			
	3.1	11.74	4.68
	0.94	0.97	0.91
	1.08	2.14	1.41
Compiling scall.c			
	2.73	10.97	3.91
	0.62	0.48	0.45
	1.02	1.92	1.15
Compiling sieve.c			
	3.01	11.53	4.79
	1.07	1.05	0.99
	1.04	2.09	1.37

TABLE 2: I/O INTENSIVE TESTS

(all times recorded in seconds)

	XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Executing dwrite			
	0.33	0.9	0.88
	0	0	0
	0.25	0.32	0.3
Executing dread			
	0.65	1.06	0.89
	0	0	0

TABLE 3: CPU INTENSIVE TESTS

	XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Executing fcalle			
	0.34	0.59	0.5
	0.2	0.2	0.2
	0	0.06	0.05
Executing fcalla			
	0.13	0.39	0.25
	0	0	0
	0.01	0.03	0.02
Function Call Overhead			
	0.21	0.20	0.25
Executing loop			
	1.8	2.24	2.19
	1.7	1.7	1.7
	0.03	0.08	0.1
Executing scall			
	2.45	4.04	3.85
	0.25	0.39	0.55
	2.13	3.32	3.15
Executing sieve (100 iterations 1899 primes.)			
	9.05	9.28	9.48
	8.9	9.1	9.37
	0.04	0.06	0.05

TABLE 4: MULTI-USER TESTS

	XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Shell 1			
	2.47	4.21	2.38
	0.08	0.11	0.1
	0.6	0.91	0.72
Shell 2			
	2.18	4.56	3.81
	0.18	0.25	0.22
	1.2	1.48	1.39
Shell 3			
	3.45	10.07	5.42
	0.18	0.39	0.35
	1.86	2.2	2.01
Shell 4			
	3.86	12.75	6.71
	0.31	0.49	0.53
	2.32	2.93	2.7
Shell 5			
	4.77	19.88	8.33
	0.38	0.64	0.61
	2.91	3.77	3.38
Shell 6			
	5.71	23.75	9.7
	0.48	0.84	0.76
	3.53	4.46	4.12

(Times are expressed in seconds and represent the average time for ten iterations of each test.)

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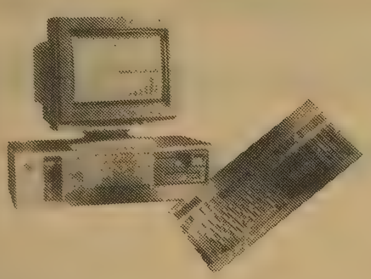

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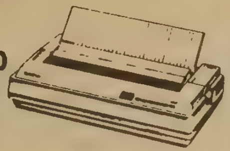

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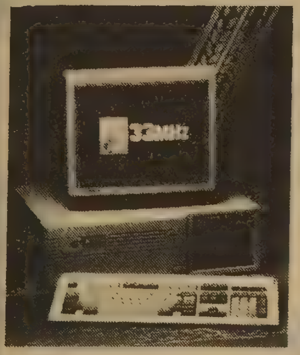

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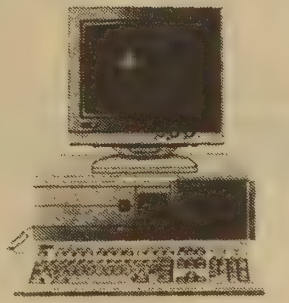

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With the X architecture, client programs and servers need not run on the same computer; indeed, clients and servers may run on computers with different architectures.

The visual interface to the UNIX filesystem works reasonably well. There are clever icons for the root directory, for the user's home directory, and for things to which the user has no permission. The icons are fairly large, and viewing all the contents of a directory with lots of entries on a 12" monitor will require quite a bit of scrolling.

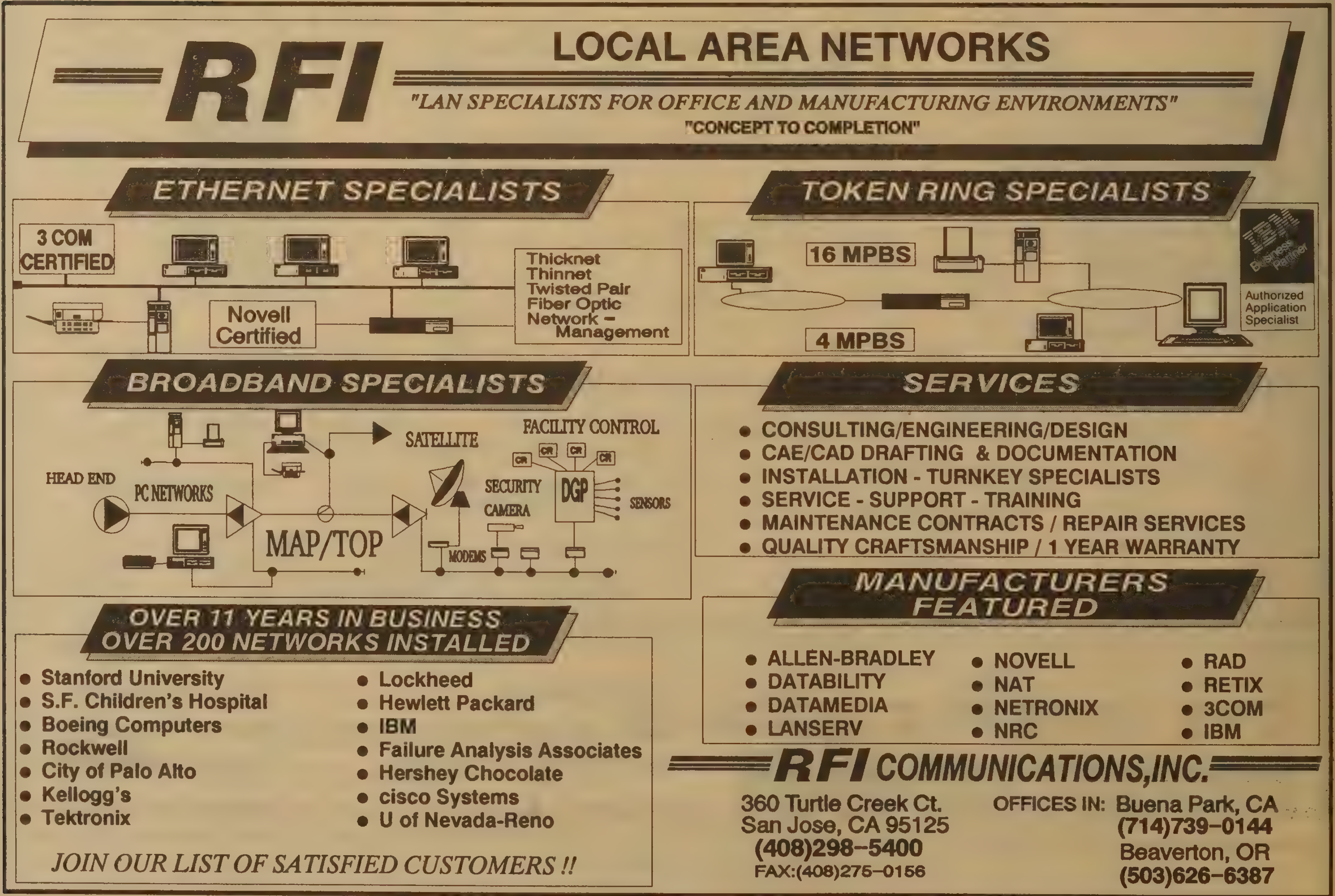
The iconic interface to operating system facilities like editing and electronic mail is less successful, because the desktop window simply calls the standard UNIX programs. For example, the "Edit" icon starts the "vi" editor in a shell window. The UNIX utilities know nothing about the graphical interface from which they've been called, so there is usually no help available, and the mouse won't be of any use in moving the cursor.

In addition to the Motif window manager and Xhibit, Xsight includes a number of client programs from MIT, a text editor, a desktop calculator, an X client for viewing UNIX manual pages, and other utilities for viewing files in various graphic formats.

The Xsight user documentation is a good introduction for users who might not be familiar with point-and-click interfaces. The pictures of screens in the documentation don't do justice to the actual screens' appearance. The administrator's guide includes useful information for changing various aspects of the Xsight configuration. It would be helpful if the online manual pages for the various X Windows programs were reproduced in the printed documentation.

Although the components of Xsight come from various sources (MIT, the Open Software Foundation, Locus, and SCO), it is a surprisingly well integrated product. (Some of the MIT client programs represent an approach to windows that is different from that used by Motif.) SCO also markets a product called "Open Desktop"; though this is also X-Windows based, it should not be confused with Xsight. Xsight is an implementation of the X Windows graphical User Interface for UNIX and XENIX. Open Desktop is something more ambitious, essentially an "instant workstation" that integrates applications with the X Windows display system.

Xsight is a relatively painless way to get started with X Windows. By itself, the runtime system really will help novice users feel less pain and experienced users be more productive, and users of all sorts will be able to take advantage of commercial and public domain X-based software. ■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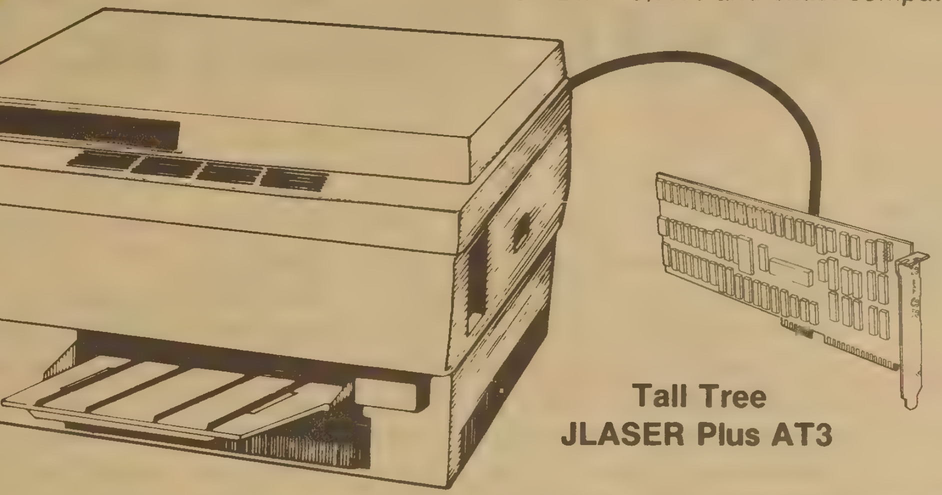
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Getting The Most From Your Online Time

BY BROCK N. MEEKS

Even a cursory glance at the global village will prove to you: it's a jungle out there. With literally thousands of online systems to choose from and a dizzying array of telecommunications programs to sort through, anything that gives you a "quick start" advantage is a priceless commodity (like your time, which you'll waste enough of if you don't make use of this kind of device).

Enter this guerrilla warfare guide to telecommunications: a kind of field guide for the global electronic telecomm guerrilla.

WHY GUERRILLA WARFARE?

Using the guerrilla warfare model is hardly original, but it works. It works from sweat-soaked banana republics to the steep cliffs of the Hindu Kush. Strangely enough, it works online, too.

The basics of this guerrilla warfare guide to telecommunications are simple: cheat, exploit and explode.

The emphasis is on using one's available resources in the most efficient manner possible. The clincher: finding an edge on your opponent and concentrating your efforts there. In the online world your biggest opponent is time. Here, then, is a three-tiered approach to combating time while turning you into a full-fledged telecomm guerrilla.

THE BASICS

The basics of this guerrilla strategy are simple: cheat, exploit and explode. (See, it even sounds like it came from a manual called "Urban Terrorist 101," doesn't it?) Sound farfetched? Let me explain.

When I say "cheat," I'm talking about cheating time. "Can't be done," you say? It can. And it can be done simply by using what's called a "cheat sheet." We've all seen cheat sheets: those clever one-page summaries that get passed around the office, the ingenious document authored by some anonymous guru, the dog-eared photocopy that reduces an arcane user's manual into a burst of essential commands and keystroke sequences.

Exploit. Again, not as ominous as it might sound. Here the plan is to exploit the knowledge of your local heroes. These types are found in every office. Identify them and exploit their knowledge and expertise.

Finally, explode. Not "explode with rage" or literally place an explosive charge inside an uncooperative modem; rather, explode any and all "urban myths" you might encounter.

OK, now that you have the theory, let's look at practical application.

CHEAT SHEETS

I don't care how well-written a manual is, it can *always* be reduced to a single page summary or "cheat sheet." Look around your desk. There are probably three or four such cheat sheets stapled, pinned or taped in close proximity to your computer.

You shouldn't have to look hard. Like any good guerrilla fighter, you've probably made do with available resources, and so your own self-styled cheat sheets are probably scribbled onto a deli napkin or the back of an envelope. A sure sign of a veteran, battle-proven cheat sheet is the presence of numerous coffee cup rings on a battered photocopy.

The evolution of cheat sheets is an information age spinoff—when technical manuals became too complex, people did what they always do: find an easier way. So it is with computers, and especially telecommunications. The first person in the office to "figure it out" refines and reduces their knowledge base to a single sheet of paper.

CHEAT:

A single page summary or "cheat sheet" can be for a particular BBS or for your telecomm program. It doesn't take any particular skill to create one of these puppies. In fact, I'd even encourage you to "steal" one. After all, why go to the trouble of creating your own when you can borrow someone else's?

The next step in this evolutionary process is that everyone in the office wants a copy of that cheat sheet; after all, who wants to dig through that stuffy manual when all the essential knowledge of the universe is right there on a single page?

How do you know when to create one of these cheat sheets? Whenever you find yourself scratching a bunch of notes to yourself on any available clean surface, it's usually time to consolidate all that knowledge onto a cheat sheet.

The cheat sheet can be for a particular BBS or for your telecomm program. It doesn't take any particular skill to create one of these puppies. In fact, I'd even encourage you to "steal" one. After all, why go to the trouble of creating your own when you can borrow someone else's? (This not only saves you time trying to figure out a particular online system or telecomm program, it saves you time on the creating end, too. A win-win situation.)

Another benefit of cheat sheets is that they tend to make you a legend in your own time. Create a particularly stunning cheat sheet, upload it to a prominent BBS and sit back and

Copyright © 1990 by Brock N. Meeks. Brock Meeks is a freelance journalist based in Washington, DC. He not only writes about guerrilla warfare tactics, he's traveled with the mujahedeen Afghan guerrillas, who have asked him to create cheat sheets for firing a Stinger missile.

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Local heroes exist on any level. They are usually unappreciated and overworked. So why should you "exploit" this already hassled master of the universe? Because you're going to be exploiting their knowledge; you're going to make them a mentor, not run them through the meat grinder.

How local heroes can help you is obvious: they've been through the "wars" and survived. More than that, they thrive. Drawing on their experience and expertise you can save yourself hours—even weeks—of frustration and agony.

EXPLOIT YOUR LOCAL HEROES:

How local heroes can help you is obvious: they've been through the "wars" and survived. More than that, they thrive. Drawing on their experience and expertise you can save yourself hours—even weeks of frustration and agony.

Local heroes are easy to recognize. There's usually a well-worn path in the carpet that leads to their office; other have gone before you to drink from this fountain of knowledge.

Once you arrive at the source of the knowledge, just ask for "the page." Your local hero will understand. A certain "rite of passage" happens when the local hero hands over the master copy of the cheat sheet for you to photocopy, while you swear a blood oath to return it as soon as you're done. (Big hint: don't leave the master copy in the photocopier. You can't escape the wrath of a blood oath or the disdain of your local hero.)

Worried about the "exploitation factor"? That your local hero will somehow feel "used"? Don't believe it. I've never met a local hero that didn't appreciate being appreciated. (And that goes for most of us.)

One word of advice: local heroes breed local heroes. It's likely you will become a local hero yourself. It happens in real guerrilla warfare—heroes spring up out of nowhere—and it happens in the urban guerrilla war zones, too. So, when you find yourself in possession of all the knowledge, don't wait for a path to be beaten to your door—start spreading the word today.

EXPLODE URBAN MYTHS

Urban myths. We've all heard them. These are the pesky—yet intriguing—stories that follow us everywhere. These are stories that, over time, become true whether they are or not. Usually, they have some grain of truth, and owe their "mythical" status to the tried and true tradition of oral history. (If you heard it in Philly, Detroit, Baton Rouge and your favorite cafe in the Mission District, hell, it *must* be true!).

Examples of such urban myths? How about the lady who ate Kentucky Fried Chicken only to discover that her extra-crispy chicken thigh was an extra-crispy *wharf rat*!

Or the stories about all those alligators in the sewers of New York City? Or the cat that exploded when its loving owner decided Puffy would dry out faster in the microwave?...

Each of the above stories is *false*. But because they've been told a hundred times over (and each of us has probably contributed to that bottom line total) they become real. Such stories exist in the telecomm world, too.

Urban myths are even more insidious when proffered online because such myths travel so fast. And the basic fertilizer of an urban myth is the number of times the story is told, retold and enhanced. We've all seen how rapidly a "rumor" starts and catches flame online. Just recently there was a story put out over the vast network of BBSes that warned of a clandestine attempt by the Federal Communications Commission to try and get the doomed online access fee pushed through Congress.

Fear swept through the online world, and the hue and cry began to swell, just as it did three years ago when we first defeated this bogus access rate increase. But this time the word was *false*.

The harm: no one took the time to check the facts. Because the "warning" sounded official and was coherently written, with inherently correct information (such as how to contact the legislators, who to write to, etc.) it took a long time before anyone checked the facts. And the facts were: the FCC wasn't trying to push this item on some secret agenda, or even on a not-so-secret agenda.

The startling aspect of all this was how fast the rumor become fact; how fast the story became an online urban myth.

Such instances point to the need for a constant vigil. Rumors become fact much more quickly in the online world. It's important to explode these myths as fast as possible. Why? Because the powers that be will never take this medium seriously if they see how easily it can be abused. That's why it's vital that, as urban telecomm guerrillas, we can show a good record for keeping the "countryside" safe and well-policed.

Nothing will hurt the reputation of this electronic medium faster than letting it become synonymous with disinformation and corruption. (A reputation it is dangerously close to wearing even now.)

FIGHT THE GOOD FIGHT

As you might have guessed, these three "rules" can be applied to just about any situation: from Beirut to boardroom to BBS, you can use these three simple guidelines to jump start you through any situation that at first seems overwhelming.

Such are my rules for surviving the telecomm jungle. Your assignment? Condense this 1200 word article to a single page and tape to a computer near you. Your comrades will thank you for it. ■

EXPLODE URBAN MYTHS:

Rumors become fact much more quickly in the online world. It's important to explode these myths as fast as possible; the powers that be will never take this medium seriously if they see how easily it can be abused.

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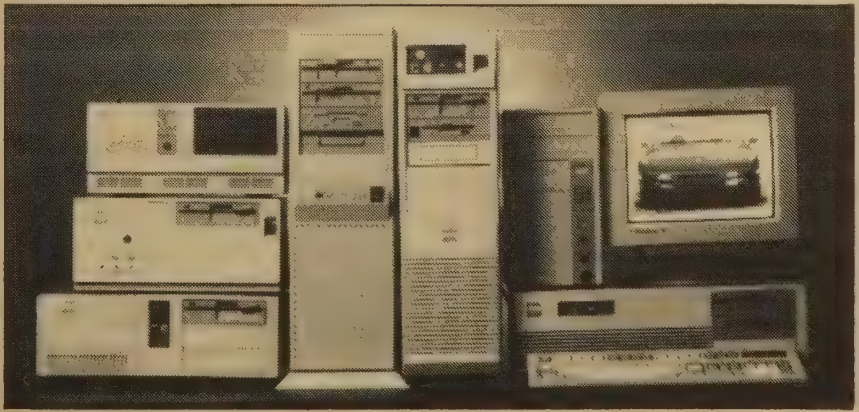

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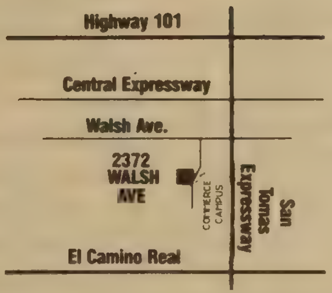

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Portables Attain Critical Mass

BY
ED KAHN

On May 9-10, the second annual Portable Computing and Communications conference, essentially a trade show which focuses on portables and laptops, was held in Anaheim. The conference is a good place to go to observe the general trends in the industry.

This year was marked by a much more extensive schedule of talks and symposia featuring lots of the best known names in the industry: George Morrow, Jerry Pournelle, Mark Eppley. The keynote address was delivered by Dr. Stav Prodromou of Poqet Computer Corporation.

But the most interesting aspect of the show was the products that vendors from around the country brought to show off. Unlike last year, there were no really revolutionary products, perhaps because portables have in some sense staked their territory.

> Once considered a niche market, portable computing is now big business.

A year ago there were no notebook computers; this year it seemed like every vendor had a notebook entry or two. The notebook field is still dominated by Toshiba, Compaq, Zenith and now Texas Instruments. But there were so many more vendors with good solid laptop entries. Little companies I've barely heard of were there with acceptable models—most of the me-too variety with little except price to set them apart from the competition.

What struck me was the incredible number of vendors with add-on products tailor-made for laptops. Most conspicuous were the modem and fax board makers. Where there was really only one good tiny modem a year ago, this year there were nearly a half dozen cigarette-pack-size external modems on display. Even more impressive was the number of vendors making internal modems to fit the most popular portables. Nearly every manufacturer offers a good quality 2400 baud modem, but these independents had more bells and whistles at a lower price than the big-name vendors. There were acoustic couplers that weighed less than a wrist watch. All of this demonstrates that what was once considered a niche market is now big business.

Software vendors were also there, but I didn't see any with laptop-only products. Last year I remember both a cursor enhancement program and a word processor specifically designed to overcome some of the limitations of laptop displays. This year the category that was well represented was contact management software, designed for sales people or others who need to integrate the computer with telephone sales and followups. These sophisticated programs combine a database of clients and their qualifications. You can use these programs to organize a whole telephone or direct-mail campaign. Reminders will pop up on days you have selected; you can, with the touch of a key, find all of the customers interested in a certain product or service. The people who put these programs together obviously feel that they are a perfect match for portables so you can take your office with you.

The only one of these programs I've looked at is The Maximizer ($295). This is truly an incredible program. It allows you to set up client profile forms with attached characteristics that can be cross-indexed and searched for an infinite number of categories or combinations. It easily accommodates client followup and time planning.

COMPUTER OF THE MONTH: THE MITSUBA NINJA-12V

Mitsuba is not exactly a household word, but the company has been in business since 1980, when they began marketing products designed for the Apple. Today they offer products ranging from 386 workstations to high-quality monitors.

The Ninja-12V is a beautifully designed 15-pound laptop powered by an 80286 processor running at either 6 or 12 MHz. This computer offers everything, but at a price ($3,995) considerably less than the competition's. Laptops have become so similar these days that price is one of the main differences, provided the computers have the features you want.

The Ninja has a conventional design, but everything works perfectly and there are a number of options for expansion. Standard configuration is one megabyte of RAM, expandable by the end user to five megabytes. The memory above 640K is configurable as either extended or expanded memory conforming to the LIM 4.0 standard.

What I like about the expansion design is that it takes standard SIMM chips. If you want to expand by only an additional megabyte, you use the 256K SIMM memory. If you are going all the way to five megabytes, you expand with four one-megabyte SIMM memory expansion chips. This is a distinct advantage over computers that require you to use their own overpriced proprietary memory.

The overall size of the unit is roughly 13" X 13" X 3" with the screen revealed when you open the hinged cover. The generous 6" x 8" display is a backlit VGA screen which features black letters on a paper white background. This is as clear as any screen I have seen. Brightness and contrast controls allow you to adjust the display to your taste.

The keyboard is a full 82 keys, offering an exceptionally nice layout as well as touch. An embedded numeric keypad can be accessed either through the Num Lock key or an Fn key. While I generally do not like this setup as well as separate numeric keypads, the small overall size pretty much requires this kind of layout. I do really like the fact that there are separate cursor control keys, as well as a column at the extreme right with End, Home, Pg Up and Pg Down keys. This means that you don't have to use the cumbersome Fn key to access these functions. Across the top is a row of ten function keys that can also access function keys 11 and 12.

In addition to the good layout, I also really like the feel of this keyboard. It is not spongy and offers just the right crispness to make

RESOURCES:

The Maximizer $295
Richmond Software
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Burnaby, B.C. V5G4C9,
Canada
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The Ninja-12V $3995
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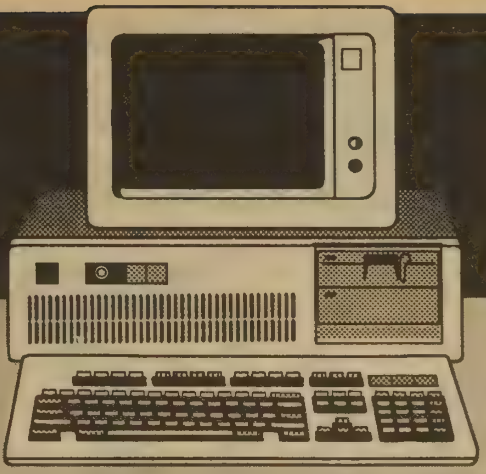

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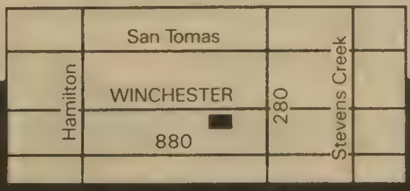

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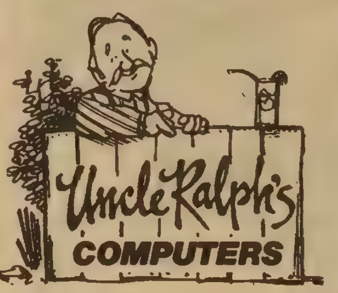

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COMPLETE SYSTEM

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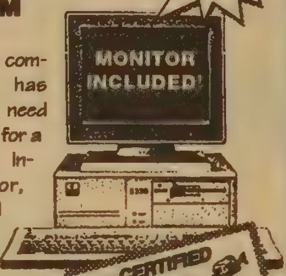
MONITOR INCLUDED!

CERTIFIED IBM COMPATIBLE

This complete computer system has everything you need to get started for a super low price. Includes monitor, DOS 3.3, and 640k RAM. Backed by a 1 year parts and labor warranty.

$499

Panasonic

DTK 286 COMPUTER SYSTEM WITH MONOCHROME MONITOR & 20MB HARD DRIVE

Monitor Included!

CERTIFIED IBM COMPATIBLE

This 100% IBM compatible runs at 12 mhz and comes complete with serial and parallel ports, 1.2MB floppy drive, 1:1 hard drive controller, 1MB RAM, 1 year warranty, and Uncle Ralph's outstanding commitment to customer satisfaction.

$50 A Month*

$999

ALR POWERFLEX 286 WITH 40MB HARD DRIVE AND MONITOR

It's Upgradable!

$70 A Month*

Monitor Included!

CERTIFIED IBM COMPATIBLE

ALR's highly reviewed powerflex series is perfect for people with expanding computer needs. Get a great buy on this 286 today, and easily and cheaply upgrade to a 386 or 386sx later. Complete system includes 1MB RAM, 40M hard drive, and monochrome monitor.

$1,399

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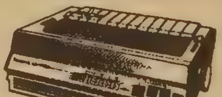
PANASONIC'S OUTSTANDING 9-PIN PRINTER



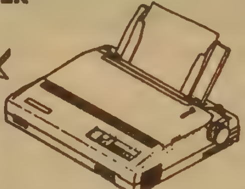
$178

Panasonic

Here's a great buy on our most popular printer. Delivers excellent "near letter quality" print, and zooms along at 192 CPS in the draft mode. Includes automatic tractor feed with paper parking. 2 year warranty!

STAR'S QUIET 24-PIN LETTER QUALITY PRINTER

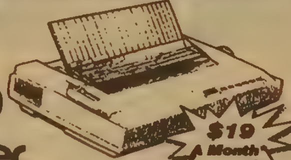
star



$269

This great new printer is quiet, fast, and easy to use. Plus it delivers "letter quality" print in 5 different typefaces, and it has a big 7k buffer.

BROTHER 18-PIN LETTER QUALITY PRINTER



$369

$19 A Month*

brother

This fast printer prints at over 360 CPS and is designed for heavy use. It supports "draft", "near letter quality", and "letter quality". And for you artists out there, this printer can print colors with the optional color kit.

PANASONIC WIDE CARRIAGE 24-PIN LETTER-QUALITY PRINTER

$469

$25 A Month*

Panasonic

Here's a great buy on an outstanding wide carriage printer. It's easy to use, has excellent "letter quality" print, and an automatic self-loading tractor feed with paper parking. 2 year warranty!

LAPTOP COMPUTERS

PANASONIC NOTEBOOK-SIZE LAPTOP WITH BACKLIT SCREEN

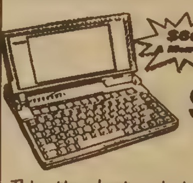
$40 A Month*

$799

Panasonic

Panasonic's newest laptop has a big bright screen, a well laid out keyboard and it's not much bigger than a notebook. Runs on AC or batteries and includes 640K RAM, MS-DOS 3.3, battery and charger.

TOSHIBA'S HOT NEW LAPTOP WITH BACKLIT SCREEN AND 1.44 FLOPPY



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$1,199

TOSHIBA

This tiny laptop is twice as fast as its famous predecessor. It has a bright new screen, a full MB of RAM, and MS-DOS built in to ROM. Runs on battery or AC and comes complete with AC adaptor/battery charger, and DOS.

EPSON'S TERRIFIC 286 LAPTOP COMPUTER *FEELS LIKE A DESKTOP*

EPSON

$100 A Month*

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The perfect laptop if you're looking for a terrific keyboard, lots of power, and a super screen. Includes 20 MB hard drive, big backlit screen, battery & AC adaptor.

SHARP 286 LAPTOP WITH 40MB HARD DRIVE, VGA SCREEN ... *AND MODEM*

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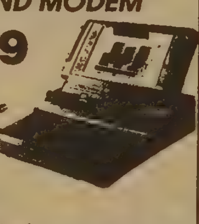


$125 A Month*

SHARP

Here's the laptop that's been getting all the great reviews. You'll love the bright VGA screen and the keyboard's excellent feel. (MS-DOS, modem, battery and charger included)

TOSHIBA 386SX LAPTOP

$3,999

$200 A Month*

TOSHIBA

Here's the best laptop for power users. 386 power, a dynamite VGA screen and fully sculpted keyboard, 40MB hard drive, battery, AC adaptor, DOS 4.01, super PC Quick, and just about everything else you could want...

FAX MACHINES

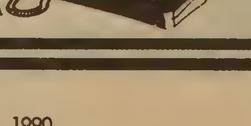
MURATA FAX WITH DOCUMENT FEEDER

Transmit and receive documents from around the world. Built in telephone, copier and 5 page document feeder.

$469

$24 A Month*

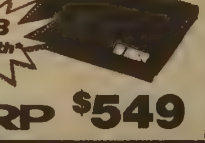
MURATA



A SPEEDY SHARP FAX MACHINE THAT DOES HALFTONES

Send & receive in a mere a 15 seconds per page. Plus it has a 5 page document feeder, 16 level halftones, & automatic fax/phone changeover.

$28 A Month*



SHARP **$549**

PANASONIC FAX + ANSWERER

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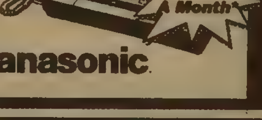

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DTK 386 COMPUTER SYSTEM WITH MONITOR & 40MB HARD DRIVE

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Monitor Included

Here's a name brand computer with a lot of speed and a small price. The complete system includes a 20MHz 386 CPU with small footprint case, 40 mb hard drive, monitor, 1.2MB floppy, 1MB RAM, serial and parallel ports, 1:1 hard drive controller and enhanced keyboard.

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UNCLE RALPH'S/MYLEX 386SX WITH 45MB HARD DRIVE, 2MB RAM & VGA COLOR MONITOR

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You'll love this computer! It's dependable, and very fast, but there's lots more. You get the best keyboard you have ever touched, a superbly crafted "accu-fit" case, parallel & serial ports, 2 MB RAM, & high capacity floppy drive. You'll also get a fast 45 MB hard drive, VGA color monitor, and Uncle Ralph's helpful support and service.

CERTIFIED IBM COMPATIBLE

COMPLETE SYSTEM **$1,869**

UNCLE RALPH'S/MYLEX 386/20 WITH STATIC RAM CACHE, 40MB HARD DRIVE & VGA COLOR MONITOR

VGA COLOR!

This great business class computer includes many special enhancements like our terrific "accutouch" keyboard and elegant "accu-fit" case, plus 1MB RAM, 1.2 MB floppy, game, parallel,and two serial ports, VGA card and color monitor. 1 year Warranty.

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COMPLETE SYSTEM **$2,295**

UNCLE RALPH'S/MYLEX 25MHz 386 WITH STATIC RAM CACHE, 68 MB HARD DRIVE, & 1024 X 768 MULTI-SCAN VGA MONITOR

25 MHz

Our best business class computer! It improves performance by 20% over most other 386 designs with a special caching technology that actually anticipates what files you will want to use next. The complete system includes our terrific "accu-touch" keyboard and elegant "accu-fit" case, plus a megabyte of RAM, 1.2 MB floppy drive, game, parallel and 2 serial ports, VGA card and color monitor.

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FUJITSU

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Hewlett/Packard's desktop laser printer is here and it's terrific. It prints four pages a minute of razor sharp text and graphics, takes up almost no desk space, and it's quiet as a mouse.

HEWLETT PACKARD

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THE BEST LASER PRINTER VALUE WE'VE EVER SEEN!

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This Everex is a great choice for anyone who needs a lot of fonts and razor sharp graphics. It's inexpensive to run, comes with a built in envelope feeder, 132 fonts, on site service, and has HP laserjet II, IBM, and Diablo emulations.

BROTHER'S TOP-RATED POSTSCRIPT LASER PRINTER

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Here's the terrific laser printer that's been getting all the top reviews. It's particularly fast and is great for all serious desktop publishers. Comes with 3 MB RAM, 35 built-in fonts, and an outstanding image.

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accurate typing easy. If you want a separate numeric keypad ($75), one is available. If you don't like the keyboard, you can attach an IBM compatible keyboard through the same port that connects the numeric keypad. This is an exceptionally well thought out design.

Like so many of the laptops these days, this one comes with a 40 Mb hard disk. Although the system comes with DOS 3.3, Mitsuba has chosen a BIOS that allows this entire 40 megabytes to be set up as a C drive. Generally, DOS 3.3 requires that you divide the hard disk into partitions no larger than 32 megabytes. I prefer to be able to handle this entire space as a single drive, so Mitsuba's decision is a real plus.

The Ninja comes with an internal nickel-cadmium battery that will power the system for a couple of hours. At that point, you can use an extra battery ($150) or recharge. Of course, you can work from the AC power supply. A full recharge takes about six hours. An indicator, along with warning lights and sounds, tells you when you are running the battery to a dangerously low level.

Mitsuba has gone to great lengths to make sure you don't waste power. An easily accessed setup program lets you define default lengths of time for the powering down of both the hard disk and the backlight on the screen. A touch of a key brings both back to life. When the computer goes into sleep mode, it also changes to the 6 MHz speed as another power conservation effort.

A range of products is available to complete your system. There is an external 5.25" floppy drive ($365). A 2400 baud internal modem is also available for the incredibly low price of $230. I haven't tried either of these products. And finally, a padded carrying case ($75) that can even hold the external disk drive is offered. All in all, this is a well-rounded product that will serve you well. These guys have thought of everything and provided all of the accessories at bargain prices.

The only weakness in the package is the instruction manual which needs to be rewritten by a native English speaker. There are typos, incomplete sentences, and no index. The computer is simple enough to use so that you should have no problem, but the manual is not up to the high standards that distinguish the computer itself. ■

One popular software category was contact management applications, for sales people or others who need to integrate the computer with telephone sales and followups. These sophisticated programs combine a database of clients and their qualifications.

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2 Serials, 1 Paralell Ports, 101 Enh. Kboard
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386SX-16 with 80MB File Server and 3 - 286-10 Mono work stations
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386SX-16	$899	$999	$1299	$1349
386SX-20	$999	$1099	$1399	$1449
386-20	$1299	N / A	$1699	$1749
386-25	$1599	N / A	$1999	$2049

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ALR

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GSX-140 (24pin 192 cps)	$339
color option	CALL
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ALPS

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TOSHIBA

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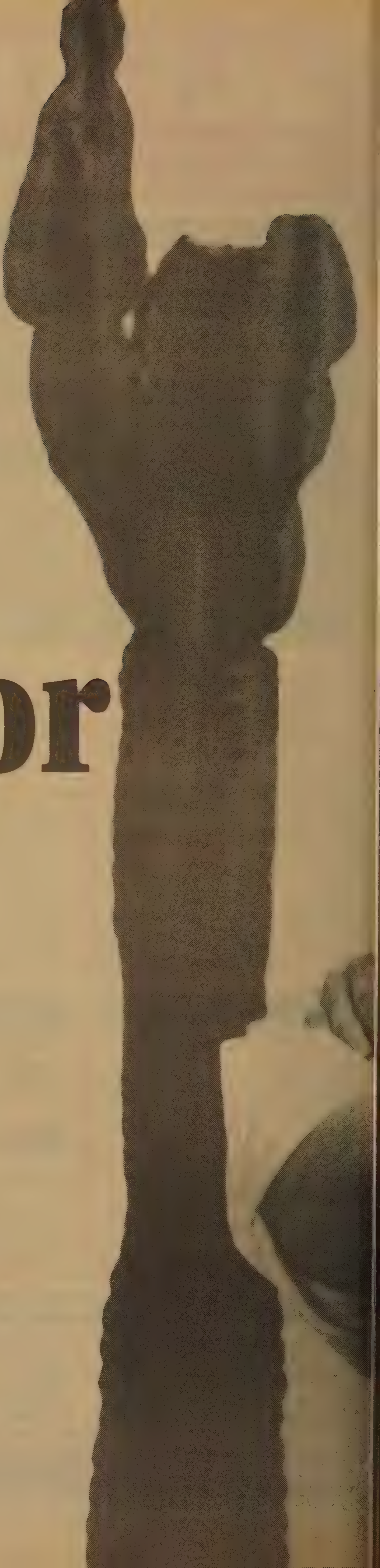
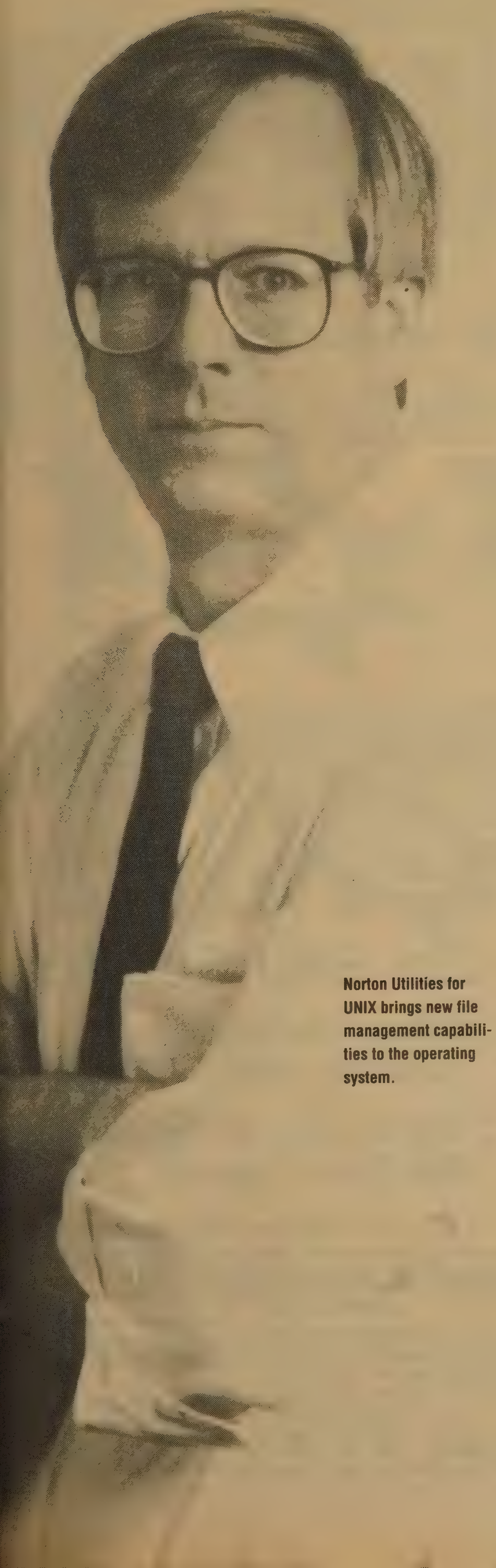
Peter Norton In The Multivendor Office

DOS Pioneer Takes On Mac And UNIX

By Mary Eisenhart
Photo: Michael Jay





Norton Utilities for UNIX brings new file management capabilities to the operating system.

One fateful day shortly after he bought one of the first IBM PCs, Peter Norton accidentally erased a file...

Norton had been working with computers in one form or another since his college days in the '60s. He'd been writing some disk exploration programs for his own amusement and edification (the state of applications for the PC in those days didn't leave you a whole lot of other options), and, he recalls, "I managed to erase one of my source files."

He continues, "I knew enough about the disk structure to know that the data was there, it wasn't obliterated, it was simply inaccessible. The concept at that point was just obvious to me, that I could write a program that would reverse the process of deleting or erasing a file. So I dropped what I was doing and wrote the first UnErase program."

Since his current job assignment was coming to an end, Norton thought it might be interesting to try to make a living selling UnErase and the companion utilities he wrote; he suspected other users might have some use for them. He started Peter Norton Computing in 1982, doing all the work himself, including marketing his products by writing magazine articles and publishing a free newsletter.

"Two things emerged out of that," he says now. "My software company went from being an occupation trying to make a living for one guy into a company that now employs 115 people and will probably do $40 million or more of revenue this year. And the writing turned into a bunch of magazine columns and over a dozen books that are available in 16 languages, including Russian and some of the other Eastern Bloc languages.

"It shows you how odd little accidents can lead to remarkable things in your life."

April 1990 was a noteworthy month for Norton. While the "Software Saint" (so called by users happy at his product's "miraculous" file recovery capabilities) has long been the utility leader in the DOS world with the Norton Utilities (including UnErase), Norton Commander, and Norton Backup, April saw the announcement of Norton's first products for other operating systems: Norton Utilities for the Macintosh and Norton Utilities for UNIX.

And while Mac users rejoiced at the availability of Norton Utilities for their machine,

UPDATE

Norton Computing Joins Symantec

Shortly after *MicroTimes* caught up with Peter Norton for this interview, so did Symantec Corp. But the result of this last meeting was very different.

On May 14, Symantec announced the acquisition of Peter Norton Computing, Inc. for approximately $70 million in stock. Norton Computing will remain in southern California, along with the majority of its employees, including its founder, Peter Norton. It will retain its focus on utility programs for personal computing.

Symantec has been building a broad product line through a series of successful mergers. The new merger will not only help Symantec grow to more than $100 million in sales this year, making it one of the top ten personal computer software companies, but it will also increase the marketing and distribution forces behind new Norton Computing utility products.

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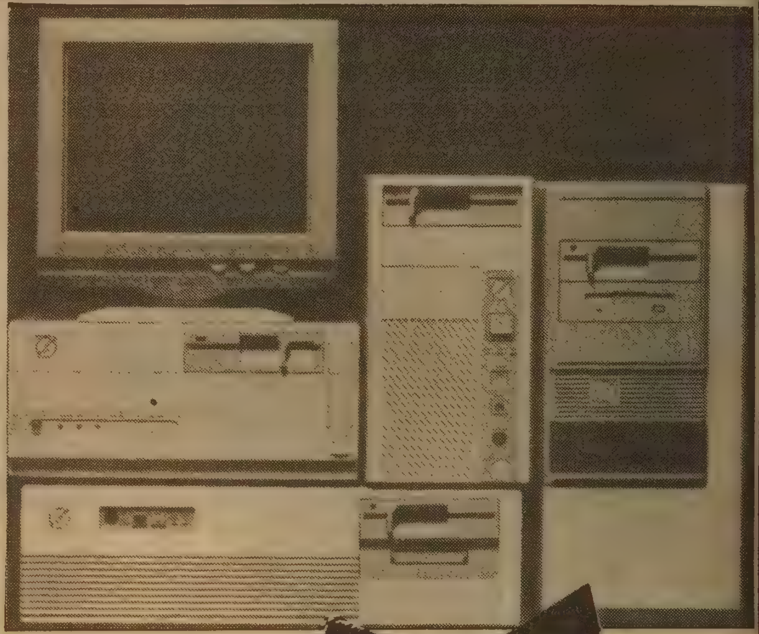

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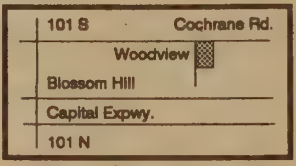

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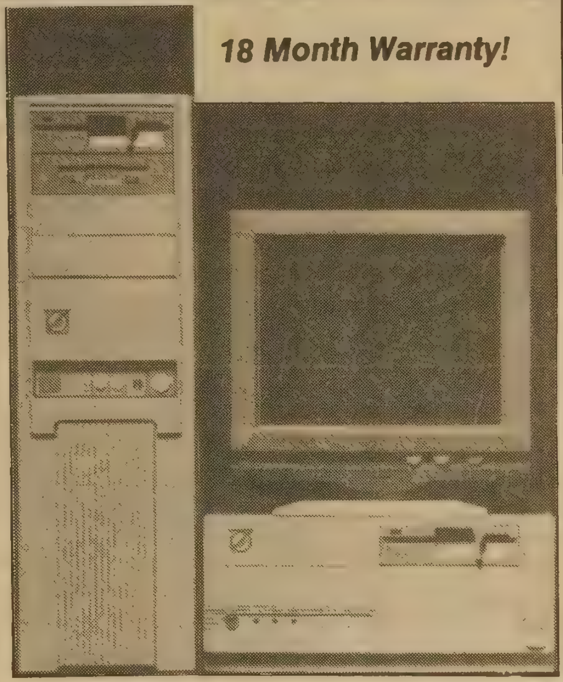

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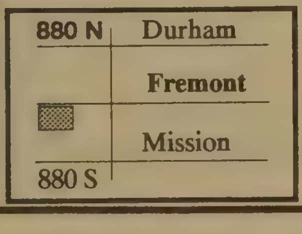

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the real earth-shaking news was the UNIX utilities. UNIX, you see, was never designed to let you recover files. You delete a file in UNIX and it's gone, almost instantly overwritten.

Which is why the announcement of Norton's product elicited remarks ranging from "It can't be done" to "If it works, it's going to be worth a whole lot more than $295" (its suggested list price).

Norton and his strategic partners in this effort are banking on the latter possibility. The product is the result of a collaboration—Santa Monica-based Interactive Systems, a specialist in Intel-based UNIX which was the first licensee of the operating system from AT&T and the creator of VP/ix, which lets DOS run under UNIX as a task, and Segue Software, which specializes in porting DOS applications to UNIX environments, joined forces with Norton Computing. Additionally, both Hewlett-Packard and Sun Microsystems are actively promoting the package.

"Each of the three partners in this has brought a lot to the table," says Norton. "We've brought our brand name and reputation, an approach to the user interface, some hot algorithms and concepts, my pretty face, all that kind of stuff. Segue brings an incredible inside knowledge of how UNIX software works, and Interactive brings its strength in UNIX marketing, knowing how to sell to UNIX customers."

We caught up with Norton at the announcement of the UNIX product.

Your company's strategy seems to be evolving from its DOS origins.

We realized that while DOS is really nice and the IBM PC family running DOS may dominate the personal computing world, it's certainly not the only part of it. We realized that we needed to bring our kind of software magic to other areas. So we started developing for the Macintosh, and we've just released our Norton Utilities for the Macintosh.

Similarly, we realized that other platforms could benefit from having our kind of software. UNIX was very important, and we recognized that we didn't have UNIX expertise. We obviously could have built our own expertise, but that would take a fair amount of time. Peter Weiner and Segue and Interactive came knocking on our door and said, "Gee, we would like to take your brand name software and put it under UNIX. And we'll both get rich and we'll both make a whole bunch of people happy."

Well, we're in the business of making people happy and getting rich. That's our business plan: "Make the customers happy. Get rich. Have fun."

What we're announcing today is the fruits of that. It's pretty sexy—it has really everything that represents the best of the current state of the art in DOS software, and everything that is really, really good in UNIX.

We have a two-dimensional strategy. One is to cover different key service areas: file recovery and protection, backup, file management stuff that goes on in a shell, network management—there's a bunch of service areas that are one dimension of the two-dimensional map. The other thing is the platform dimension—DOS, DOS with Windows, OS/2, the Macintosh, you have various flavors of UNIX, possibly other platforms as well. Our intention basically is to take the chessboard that this has defined and fill in as many of the squares as we reasonably can. Now clearly we're not going to be able to cover them all, and deciding which squares to land on is a tricky bit of business.

Covering multiple platforms has two different kinds of importance. One is just that every square on the chessboard that you fill in adds incrementally that much revenue. You're satisfying that many more needs for that many more customers. So each time you land on a square you get another 5%, or 30%, or some increment of business.

Every piece that we fill in satisfies some customers and adds some dollar revenue to us, so everybody's happy with that. But at some point when you've filled in enough of the squares, you're starting to accomplish something that is more than the sum of the parts.

Because when you visit an organization that's making serious use of PCs, it is very rare to find one kind of machine. What you normally find is that there will be an office full of PCs, and then some Macs here and there, where somebody wanted them or the art department needs them. Or vice versa, an office full of Macs, but the financial type has a PC. And then you've got a network server that might be running OS/2 in the future, it might be running UNIX, you may have an engineering department that has some UNIX workstations, but the key thing is that you have a mixed shop.

Now individually the users are going to choose their own applications. They're going to have machines that suit them and applications that suit them, and nobody is going to buy WordPerfect on the Mac because somebody else is using WordPerfect on the PC. Applications really do get chosen for the platform, for the user, for the functionality. The MIS manager says, "I don't have a problem with the fact that I've got to support Excel or Wingz on the Mac, and Lotus 1-2-3 on the PCs. That doesn't bother me." But in some areas of utility needs, it's clear that you need some global solutions. You need backup on all those machines; you need disk uncorruption on all those machines. Now they could be as different applications from different vendors as the spreadsheets and the word processors, but there's an advantage, if only in training and support costs, to have some unified solutions. That's a key part of our strategy—we fill in all those pieces, and then suddenly we are making some people happy that no collection of separate pieces could have done.

In the DOS world, there's a market that Norton essentially owns. What are the challenges of moving into different worlds where there are entrenched competitors?

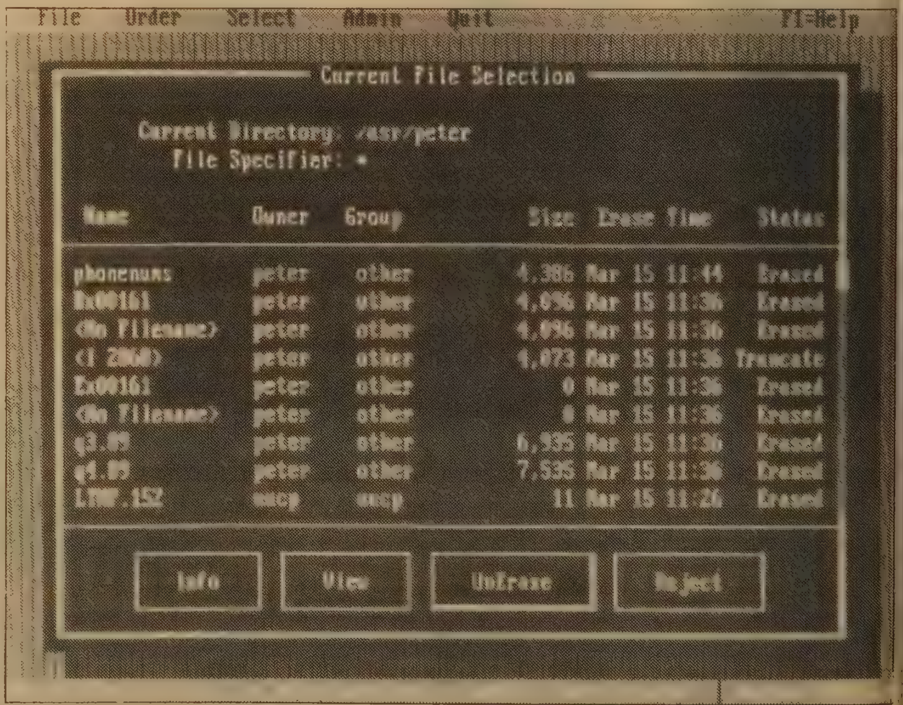
Well, there aren't any entrenched players in this area in UNIX. In the Macintosh world, there certainly are people who got there before us, but frankly with products that were not particularly strong. If you saw the reception of our stuff at Macworld Expo, you saw people more or less breaking out in applause.

There have been a lot of DOS software companies that have gone over to the Mac and have done it in a real half-assed way, and the Mac people go "Hmm. Give me a break." Well, we really did it. We didn't just make our stuff Mac-like; we think that in some ways we moved the state of the art of the Mac forward a little bit. The running-man icon, some of the presentation that we do, the full use of color—we've not only met the standard of what people expect from their Mac, but if anything we've pushed it a little hair forward. There's an entrenched competitor there, sure. How much market share we're going to take away and how much we're just going to build, that remains to be seen. But we're confident that we're going in with a great deal of strength.

On the UNIX side, this kind of thing has never been done before. That's why these people were so hungry to have our kind of stuff, because there's just nothing there. The UNIX gurus really expect this stuff to take off like crazy.

UNIX being a multitasking operating sys-

"When you visit an organization that's making serious use of PCs, it is very rare to find one kind of machine. You normally find an office full of PCs, and then some Macs here and there. Or an office full of Macs, but the financial type has a PC. A network server that might be running OS/2 in the future, an engineering department that has some UNIX workstations."



```
                 Current File Selection
    Current Directory: /usr/peter
       File Specifier: *
Name           Owner   Group         Size  Erase Time    Status
phonenums      peter   other        4,386  Mar 15 11:44  Erased
Ex00161        peter   other        4,096  Mar 15 11:36  Erased
<No Filename>  peter   other        4,096  Mar 15 11:36  Erased
<I 2060>       peter   other        4,073  Mar 15 11:36  Truncate
Ex00161        peter   other            0  Mar 15 11:36  Erased
<No Filename>  peter   other            0  Mar 15 11:36  Erased
q3.89          peter   other        6,935  Mar 15 11:36  Erased
q4.89          peter   other        7,535  Mar 15 11:36  Erased
LTMP.152       uucp    uucp            11  Mar 15 11:26  Erased
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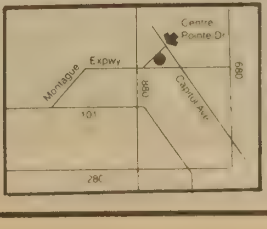


tem, a file goes with a puff of smoke much faster than it does under DOS. If you're running your own DOS machine or your own Mac, and something goes wrong, you can say "Hold the phone! Nothing touches this machine until the repairman comes!" You can't do that with UNIX—you've got a 20-user UNIX system, you aren't going to tell the other 19 people to take a break, right?

From what I've seen, this is Intel-based UNIX, and that's the platform you're focusing on.

For the moment.

Does this say anything about your sense of the future of OS/2 and Presentation Manager?

No. Nothing whatsoever. Speakers on the platform today [at the announcement] include representatives of Sun and Hewlett-Packard, and we're certainly by no means restricted to Intel chips, nor to any one variation of UNIX.

It's really where the best opportunities, the best market share, and so on and so forth, are. We'd love to cover the whole UNIX world, and eventually we may, but piece by piece we're going to be filling in as it makes strategic sense. A dozen factors go into that: how difficult adapting to another square on the chessboard would be; how large a market share it has; how much you can charge—you can charge mainframe customers more than you can charge desktop customers. All the things that go into a sound business decision. To get to what's happening with operating systems and Intel chips—UNIX is clearly going to be quite important, but UNIX is a special arena of its own. You walk into the woods, and you discover that different species live right next to each other—the chipmunks and the birds and the insects and the snakes winding their way through the leaves, and yet they're all living in the same forest.

Well, there's a lot of different operating systems that run on Intel chips, and some of them relate strongly to each other, and others are totally separate worlds. The UNIX world is pretty much distinct from the DOS/Windows/OS/2 world. Obviously there is some cross-talk, there is some cross-fertilization, and there are some people who use both. But by and large, they're separate worlds. The tremendous success UNIX is having on Intel-based platforms really says nothing either positive or negative about the future of Windows or of OS/2.

I really think UNIX is going to continue to thrive beautifully on Intel hardware, but it's not going to take a single sale away from Windows and from OS/2.

Windows and OS/2 represent the natural growth path from DOS. DOS is forever. We are going to go into retirement, we will be in old-age homes, and people will still be banging away on DOS. But those will be, to invent a term, the junior users of desktop computing. The people whose needs are heavier, more technical, more demanding on their machines, are going to be using more advanced operating systems.

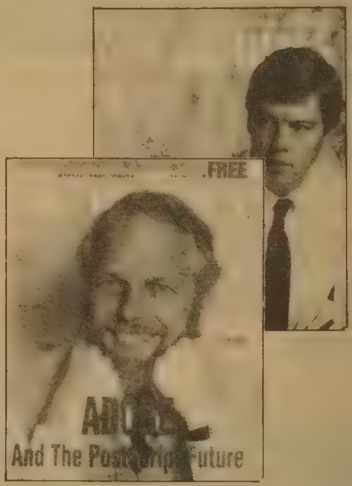
Clearly, OS/2 is going to be an important advanced operating system in the future, because it delivers three key things: a graphic user interface, multitasking, and graceful extensibility.

So there's no upper memory limit or anything like that?

No upper memory limit, no storage limit, and the high-performance file structure in OS/2 is a clear example of that extensibility. It's designed so that when it's just reaching the limits of its setup, it sort of tears down the walls and expands outward. It's a beautifully extensible file structure, so it can deal with thousands of files, not just hundreds. It can deal with files that are megabytes, and tens of megabytes, and hundreds of megabytes, gracefully. It can deal with the supporting information on those files, what's called extended file attributes, where you keep track of who owns it, what applications touch it, etc. That likewise is extensible. So the high performance file structure and other components of OS/2 are all designed to breathe, to grow without becoming, as houseplant people say, rootbound. DOS is rootbound.

The people who use or supervise the use of DOS machines now look into the future and say "Gee, if I'm an MIS manager and I'm taking care of the needs of several hundred or

"Nobody is going to buy WordPerfect on the Mac because somebody else is using WordPerfect on the PC. Applications really do get chosen for the platform, for the user, for the functionality. But somebody overseeing all this sees there's some global concerns."



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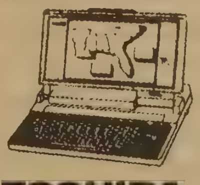

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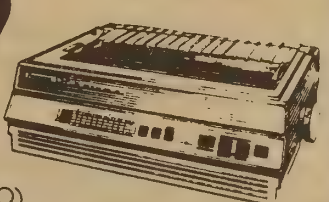

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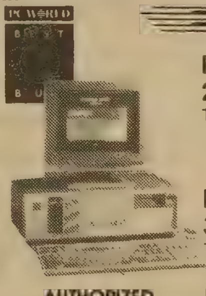

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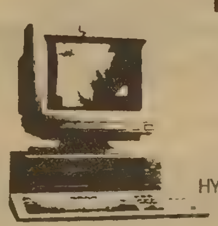

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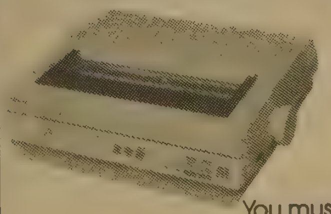

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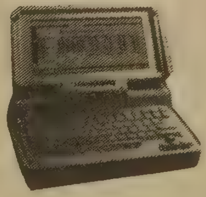

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several thousand DOS users, where am I going to need to lead those people to satisfy their needs five years from now and ten years from now?" I think farsighted MIS managers see that they're going to need to have an advanced operating system on those machines. Well, certainly UNIX is an advanced operating system, but it's not the natural migration path from DOS. OS/2 is.

OS/2 is clearly, for today's DOS users, their future operating system when they need all those facilities. When they don't need it, they can stay with DOS, which is just dandy; they can migrate to Windows, which is a beautiful half step into OS/2; and then they can move on into OS/2 or stay in Windows. Windows provides a whole lot of power, and if you don't need everything that OS/2's going to deliver, you can stay in a relatively less expensive, relatively easy environment to be in.

What would be some criteria for people to make that sort of decision?

Fake multitasking is wonderful for limited kinds of things, but when you need serious honest-to-gosh multitasking, then you need a multitasking operating system. You can do a little print-spooling, and maybe a little bit of background email. But when you're really doing more than one thing at a time, you need multitasking.

Say you've got a LAN. Managing your machines working in that LAN is really a separate process from the other things you do. Right there there's a need for multitasking.

Or you have an internal email system for your organization. You need to have on your screen at all times a little email icon that should have three very recognizable states, by color or whatever: "No mail."; "There's mail. Read it when you want"; "Hot flash from your boss—drop everything!" So you have sort of a gray, a yellow, and a flashing red—maybe literally that. If email is going to serve you, it needs to work in that kind of way.

Supposing you're a financial type. Supposing you work for a company that uses commodity raw materials in its product. Maybe you're mixing feed grains for animal feed—in fact, my very first computing experience on an IBM 1620, there was an outfit that did exactly that.

They mixed feed grain, and they rented time on our 1620 once a week; they would throw in this huge FORTRAN program and it would figure out, given current prices on different kinds and qualities of grain, what mix of stuff to put together to economically have a nourishing animal feed.

You need to be doing that live. If you're a company that trades financial instruments, T-bills or something, or if your company buys commodity stuff, like cement, sand, grain, whatever, you ought to be monitoring the commodity market for it constantly. So you could have a background task that multitasking allows you to do that would be monitoring current price quotations and whatever it is that's important to you, that has break points built into it so if the prices go above or below an area that you consider normal, you get a hot flash that says attention is required.

I could imagine a purchasing agent having two or three background tasks going on on his machine at all times, one invisible to him—the networking—and two visible to him—internal company email and monitoring his purchasing. And the rest of his screen devoted to whatever work he was doing—spreadsheet, database, word processing, playing a computer game because it's a slow day.... A multitasking operating system gives you the capability of doing that, and doing it well, and doing it reliably.

You combine a graphic user interface, so you can have icons, and multiprocessing, so you can be constantly monitoring email, the stock market, and whatever, and suddenly you have a compelling reason to have a full-blown multitasking graphic user interface expandable operating system like OS/2.

I'm just giving one example. But the truth of the matter is that an awful lot of people can benefit from serious multitasking once they get a chance to get a serious taste of it. Not everybody needs it all the time, and a lot of people will never need it, but many organizations and many sophisticated users of desktop computing are going to wonder how they ever got along without it. ■

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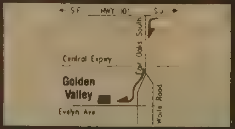

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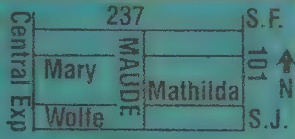

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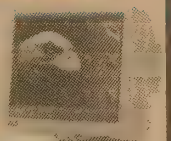

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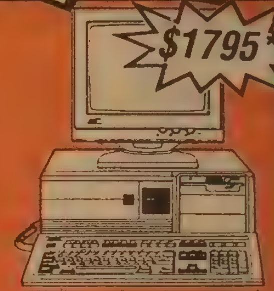

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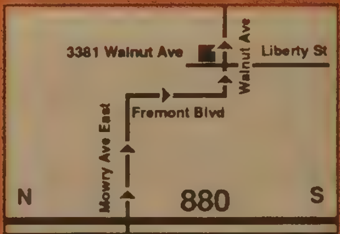

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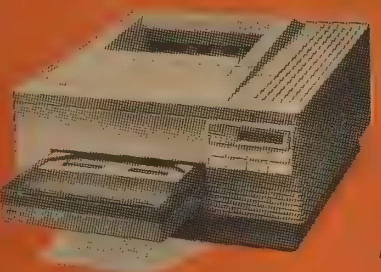

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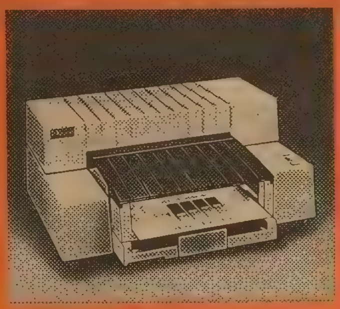

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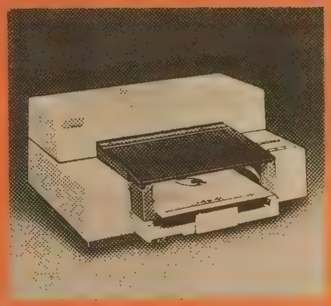

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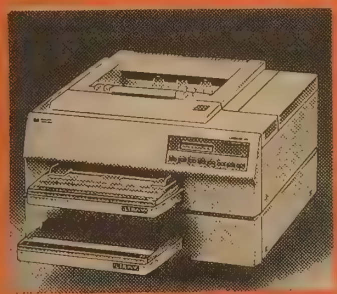

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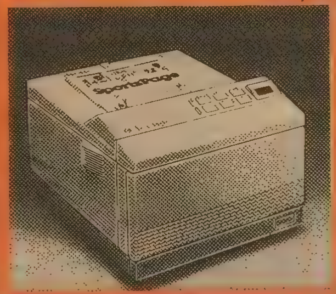

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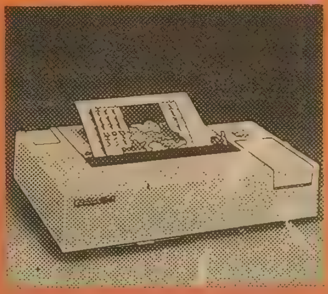

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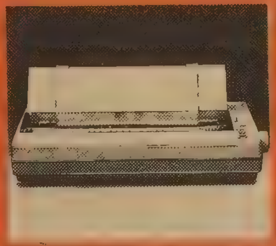

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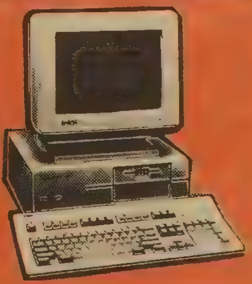

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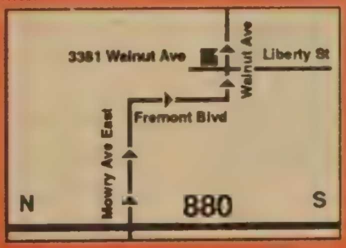

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Electronic Music Comes Home

Personal Computers Unleash Creativity

BY MARY EISENHART

In his many years in the keyboard business, LA's Joe Goodman has seen a lot of changes. He started out selling acoustic pianos, being himself a pianist; became a fan of early-model synthesizers; and, just last year, sold off the acoustic piano business to concentrate on a full-service electronic music shop that provides instruments, computers, software, and the expertise to tie it all together.

The personal computer has exerted a profound influence on the music business, opening up areas that were previously the exclusive turf of professionals. Says Goodman, "Technology enables everybody to be a songwriter/producer/performer."

According to Goodman, the popularity of the personal computer in recent years, along with the advent of the MIDI (Musical Instrument Digital Interface) standard has changed the way people make music. "It's only in the past few years that all the musicians have realized that the computer is not the enemy, it's a friend. And they're starting to make the computer an integral part of their setup."

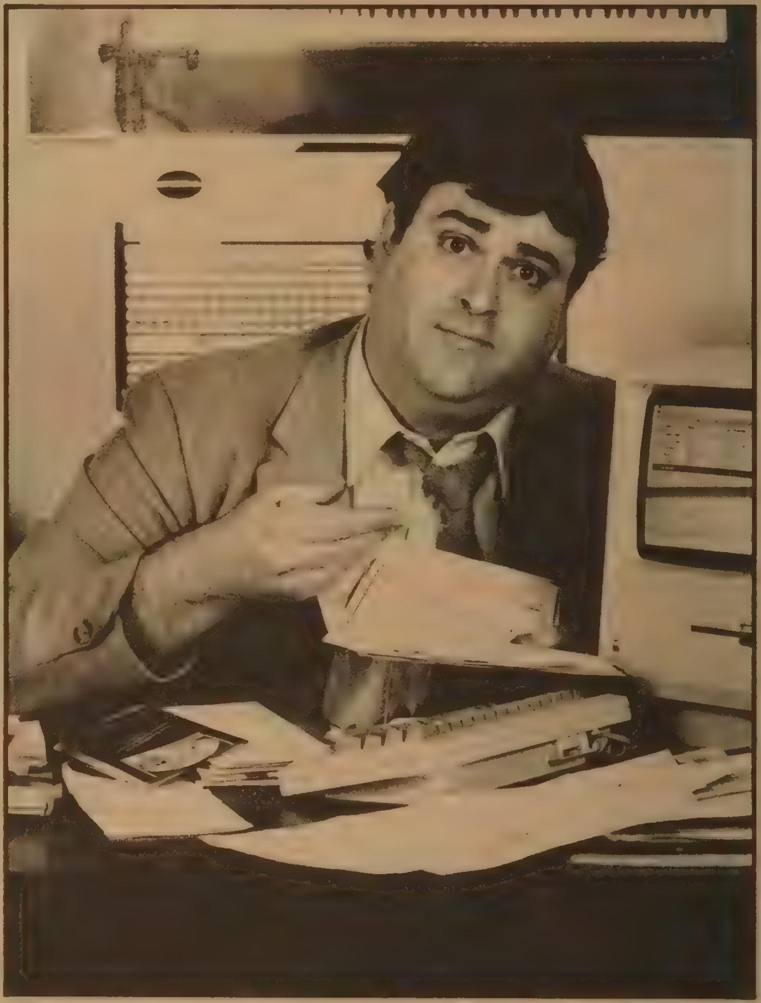
Perhaps equally important, though, is accessibility of musical tools to a whole new class of musicians: computer users. Explains Goodman, "The guy who's always been a computer-head but who's been afraid of music is now just becoming aware that there's all sorts of musical instruments, in all sorts of price ranges, that interface great with the computer."

> "It's only in the past few years that all the musicians have realized that the computer is not the enemy, it's a friend. And they're starting to make the computer an integral part of their setup."

The evolution of computer-based music parallels the development of the computer industry as a whole. Goodman sees a three-stage development which looks pretty familiar to industry watchers: the early stage (not unlike the era of the IBM Priesthood) where synthesizers were primitive, arcane, and difficult to use, and the musician had to be something of a specialist to use them.

The second stage, says Goodman, "was totally technology-driven. Everything was technology. It was good in that it opened up the world of music to a huge number of people, but it also created a situation where the technology was creating the music. It simplified things, so a lot of people were doing the same thing and they weren't necessarily doing that much creating. But the technology was so new and awe-inspiring..." Shades of the early Macintosh.

Now the industry's mature enough that as far as Goodman's concerned, we're in the golden age of electronic music. "Everybody's got a lot of technology, and now it's separating the creators from the people who are just pressing buttons. They're sitting down, calming down, and figuring out how to use the technology properly and creatively, instead of just pressing every button and making all the fireworks they could."



Veteran keyboard dealer Joe Goodman says the computer has made the home music studio a reality.

Perhaps surprisingly, Goodman maintains that it's often easier for a person with computer skills to become skilled in electronic music than it is for a professional musician, because many functions are similar. And with a fairly minimal investment, a user can achieve some amazing things: "If a person already has a computer system, for $500-1,000 he can get all the tools he needs to make a very professional-sounding recording," says Goodman.

The changes in the industry have also resulted in a change in how instruments are sold—as in the business world, the integrated solution is often the most effective approach. In contrast to the acoustic-piano days, Goodman says that computer vendors, electronic instrument vendors, and the growing number of retailers who sell and integrate the products into systems, must work together to be effective. Recently Goodman Music co-sponsored a seminar with Apple Computer and synthesizer giant Roland to showcase new music capabilities. And, according to Goodman, it was a sort of electroharmonic convergence, drawing both musicians and computer users who wanted to explore each other's worlds. (Goodman Music, 818/760-4430) ■

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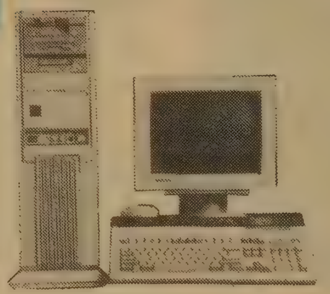

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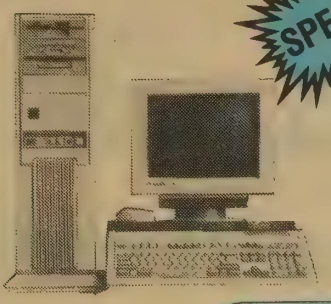

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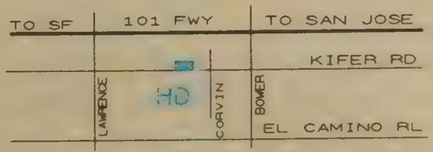

Macworld Expo: Report From The Trenches

BY DAVID MORGENSTERN

BMUG

The Macworld Exposition came to town with plenty of mixed feelings and created the same. My spirit thinned to the thickness of a floppy disk, prowling deafening parties after midnight. My feet expanded to fill every spare crevice of my already-tight shoes. The following day, I'd be feeling full of cheer, talking with user groupers from around the world. We'd dive back into the ocean of vendors for a couple of miles and then step out into the sun for a breather.

The only lasting remnant of my Expo exposure seems to be the flu I caught a couple of weeks later. As I lay on my back, fever working with an accelerator card, my faith tested, I still would not renounce my faith in the show. It was worth every sniffle.

EXPO SAT

It is both physically, economically, and ergonomically impossible for *everyone* in the Macintosh community to attend the Expo, although at times during the week it felt like they did. But I've devised a little quiz for those that couldn't attend. If you pass, no one but you and your checkbook will know if you attended or not.

1) Expo visitors who thought the show had little in the way of new or innovative products were:

- **a)** members of the Macintosh press corps
- **b)** BMUG members who attend every Thursday night meeting and Special Interest Group
- **c)** Mr. Spock impersonators
- **d)** Microsoft employees
- **e)** all of the above.

Answer: E. In the good old days (long before the introduction of the Mac II), major product announcements were always tied to the two major Macintosh shows. Vendors had to struggle for scraps of publicity in the monthly rags. Now the Mac press corps covers a full calendar of shows for newspapers, weeklies, biweeklies, and monthlies, so vendors are more comfortable releasing (or leaking) goodies at other times of the year.

But there's still a tremendous nostalgia for the Expos of the Golden Age and all the shockingly great stuff one could see there. Users who haven't seen it all already thought that there were plenty of toys to go around. Several BMUG ol' Expo hands thought this was the best show in the past few years.

A newspaper reporter quoted a Microsoft product manager in a jaded it's-a-bore article, saying, "I don't know of anything really exciting that's going on, so I don't know if the market is going to be able to grow this year." Translation: "There's certainly nothing new and interesting at the Microsoft booth, but I haven't been out of the booth at this or any other show." The guy had to have his *joie de Mac* surgically removed as a condition of employment.

Copyright © 1990 by David Morgenstern. All rights reserved worldwide. David Morgenstern is a Bay Area "MacNurturer" and BMUG member. David is DMORGENSTERN on MacNET and himself at (415)549-BMUG.

2) This year's Expo booths were:

- **a)** wide
- **b)** sprawling
- **c)** larger than most urban dwellings.

Answer: C. The booths reached for the ceiling of the Moscone Center. Many were not only tall, but had little second-story offices built on top where the sales manager would be in a automobile show room. Sadistic show bosses must have used the rooms as hot airless punishment cells for poor performers. No, no—not the booth box!

The Apple booth looked like a Mondrian painting, all lines and boxes. Someone in the design team must have gotten wind of the corporate changes at Cupertino—the booth sported the colors of the German flag. Guten Expo, Herr Spindler.

The glorious BMUG booth was the tallest it's ever been, sporting a gigantic grey bell tower and colorful banners. Jim O'Connor, a HyperCard programmer, created the facade and Gene Sky designed the booth. We also got into the multimedia act, with a fantasy presentation by Lisa Lee of Flat Fish Factory, featuring whimsical representations of BMUG regulars.

> **The only lasting remnant of my Expo exposure seems to be the flu I caught a couple of weeks later. As I lay on my back, fever working with an accelerator card, my faith tested, I still would not renounce my faith in the show. It was worth every sniffle.**

3) The ugliest scene glimpsed by Expo attendees was:

- **a)** the bums on the streets around The City
- **b)** the drooling crowds around the Reactor booth, featuring a color X-rated sex game
- **c)** the waiting line to get into the "exclusive" MacWeek/MacUser marketing party.

Answer: C. This party was to highlight how hip and elegant the Macintosh community could be, even when getting Lambada dance lessons. This was supposed to be the power party of the year—the right kind of people, invitations only, and black tie encouraged.

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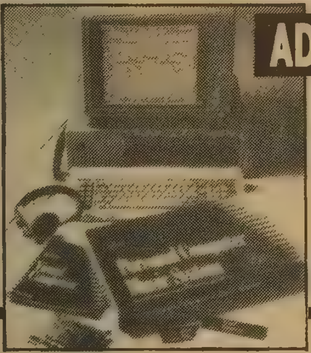

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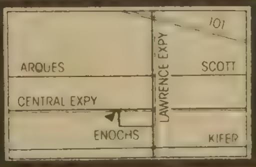

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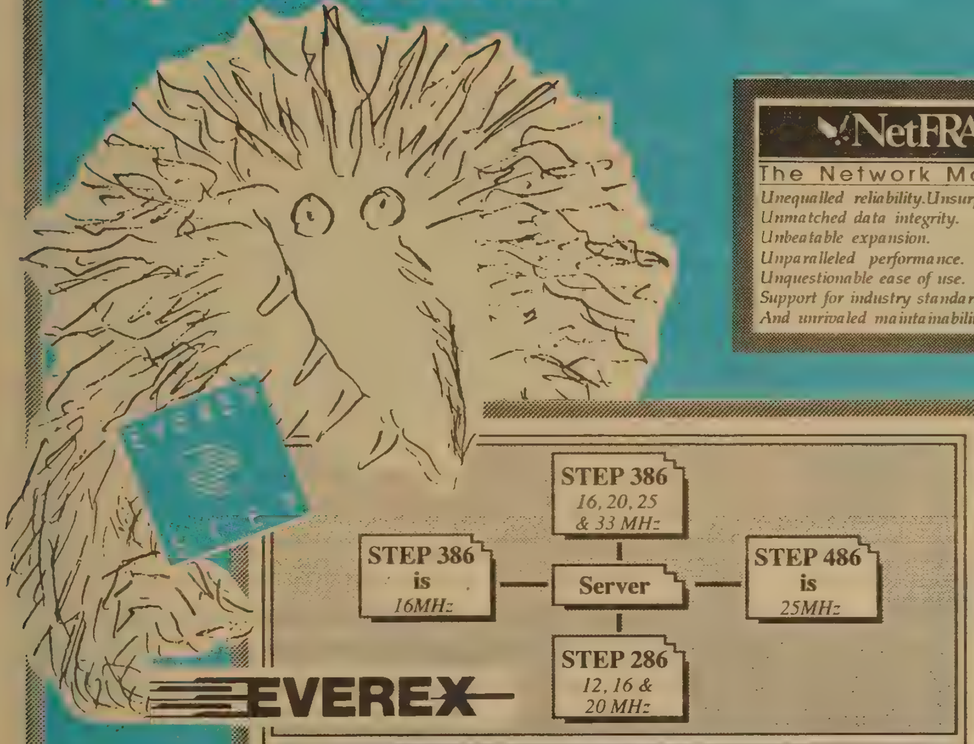

The Critics Choice

What are people saying about Everex STEP computers? ***PC WORLD*** places the STEP 386 "smack in the middle of the winner's circle." ***COMPUTER CURRENTS*** "can't say enough good things about it. Performance was unbelievable." ***COMPUTER WORLD*** says "the STEP 386 earns the highest rating they've ever recorded." John Dvorak, columnist for ***PC MAZAGINE***, is hooked on the STEP 386 claiming, "it just blew all my benchmark tests off the scale." For Dvorak, the STEP 386 is "the absolute fastest"-"the one to watch." Where does that leave the competition? ***PC WEEK*** has Everex "outdistancing even speed merchants such as the Compaq Deskpro 386/20 and the ALR Flex Cache 20386, while basically leaving IBM's Model 80 in the proverbial technological dust." What about the Everex STEP 286? ***MONEY MAGAZINE*** hails the "heavyweight computer muscle" of the STEP 286/16 and places it at the top of their ideal office catalogue. Economical? When it comes to delivering high qualilty at an economical price, ***PC MAGAZINE*** claims "the only place where Everex skimps is the price." With outstanding performance and economical pricing, Everex "seems to have it all."

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Program Length:	**Price:**
1 Day	$395.00

Objective:

The overall objective of this course is to give the student a solid foundation in the use of VINES, enhancing their knowledge and efficiency; thereby improving their job performance and satisfaction After taking the seminar, a user who had no previous knowledge, should be able to use the Banyan system effectively.

VINES ADMINISTRATION - EDU102

Program Length:	**Price:**
3 Days	$1,095.00

Objective:

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Program Length:	**Price:**
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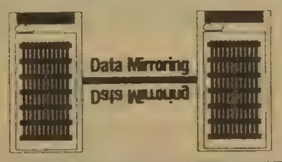

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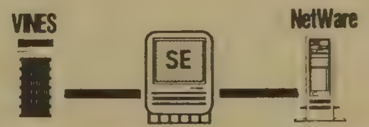

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> **A newspaper reporter quoted a Microsoft product manager saying, "I don't know of anything really exciting that's going on, so I don't know if the market is going to be able to grow this year." Translation: "There's certainly nothing new and interesting at the Microsoft booth, but I haven't been out of the booth at this or any other show." The guy had to have his joie de Mac surgically removed as a condition of employment.**

Outside on the sidewalk, the well-heeled Mac crowd was forced to line up after getting out of their limos and taxis. Since the party was packed tighter than shrinkwrap, people had to wait for pooped partygoers to depart before they were allowed entrance. The folks leaving had the severe inner-ear and vocal cord damage look that comes from partying with a band in a hall with marble ceiling-to-floor lining.

Patience was not a virtue to a number of the fat cats, who elbowed their way forward, refusing to line up, and voiced the idea of an ad-tocracy—the more advertising one does with the magazines, the better the place in line. "Nobody buys more space than me," crowed a very loud example of the Ugly Macintosher. I haven't heard whining like this from 5th grade girls.

As I walked up the street after leaving the party, I saw John Draper, Captain Crunch, the t-shirted wild-man hacker, looking to crash the party. I gave him my invitation, knowing that he was just the person to really make this party.

Virtual Valerie by Reactor is the latest sex-oriented product from Mike Saenz, the creator of the Shatter comic books. This is a conceptual continuation of the infamous MacPlaymate program that caused the San Francisco police to raid Mike's booth at the 1987 Expo (it was a stone's throw from the BMUG booth). Valerie is a CD-ROM-based 30+ Mb color interactive game. The object is to have sex with her; however, the program doesn't make it easy for the player. If you make a wrong move, Valerie kicks you out of the apartment—and reboots your computer! This is not a game to play in MultiFinder with unsaved work.

The color art and interface of the program are stunning, but the hardcore cyber-sex is pretty silly. Saenz is definitely on track translating comic book sensibility to the 8-bit color medium. This looks to be the first in a line of CD comics, since other Reactor products, space military adventures and vampire horror features, are advertised on Valerie's futuristic entertainment center.

4) The best Expo parties featured:

a) live music from Mac rock and roll celebrities

b) appearances by Jean-Louis Gassée

c) food that guests observing the Jewish Passover dietary laws could eat.

Answer: C. Mitch Hall, the promoter of the Macworld Expo, never seems to check the calendar. Usually the Superbowl interferes with the last day of the San Francisco Expos. This show had a one-day conflict with Passover, a major Jewish holiday, and Good Friday, a major Catholic one. The Passover holiday puts some drastic restrictions on what observant users could eat at the show and at parties. The BMUG and Software Ventures parties featured such food, while most others didn't bother.

The BMUG party was one of the best of the Expo, packed with users from around the world and celebrities. Amanda Goodenough, the HyperCard author, and Saint Silicon, author of the Binary Bible, came by the celebration. The bash site was Macadam Computer, where everyone got to see Tom Santos's new product, the Road E, a headless Mac that can be used as a SCSI drive with another computer, or hooked to a host of monitors, including a regular television set. Tom's better half, Dianne, catered the fantastic affair.

The Software Ventures party was held in a suite high in San Francisco's new Marriott Hotel. It was filled with great company and food to match, everyone hitting the big plates of matzah, cream cheese and real smoked salmon. "This isn't the party I expected," was the sniff of a prominent computer columnist discovering that Jean-Louis Gassée wasn't in attendance. And what are the rest of us—paté?

Todd Rundgren's party spilled onto the street at the Wet Paint Studio in the Mission district, across from a gravel company. He and his rock band played several sets well into the early morning for a very mixed crowd—the leather and chopper motorcycles set and the Silicon Valley heavyweights joined in good music and product promotion. Todd is pushing the FlowFazer CDEV by Utopia Grokware, a graphic program that creates flowing images on the screen. The program is not a screen saver, since it won't allow any background tasks, such as printing, or telecommunicating. He calls it stress reducing "mind candy."

5) The hardest thing to find at the Expo was:

a) a place to sit down and rest your feet

b) your badge

c) Rosebud Technology booth.

Answer: C. Rosebud seemed to be everywhere at the Expo, with t-shirts, press releases, and a booth that was very hard to find, even though signs and flyers directed interested parties to it. The company announced a series of provocative products that sparked the interest of several reporters and editors. The major difficulty was that Rosebud was a hoax—"rosebud" was the word that fueled the investigation in the movie *Citizen Kane.* This joke was a celebration of April Fool's Day (Expo observance always falls on the first day of the show) by some old Mac hands.

The principal products in the Rosebud line were Powerlink and Silicon Valet. Powerlink was supposedly an Apple Desktop Bus (ADB) device that would allow a Mac to communicate with another Mac, or printer, over the existing electrical wiring in a building. They claimed their "AppleTalk-compatible protocol allows you to transfer data at many times the speed of a modem!" There is supposedly a PC-based product that does something like this, but it's very s-l-o-w.

Silicon Valet (pronounced Val-lay) was an "elegantly simple engineering breakthrough" that connected your Mac to any phone plug or AC wall outlet. This would allow your Mac to control any connected electrical device, using the SLED, SmartNode Logic Emulation Driver software. Movie buffs remember that Rosebud was really the brand of sled that Kane rode as a kid.

This year's Expo badges were flimsy paper jobs, with awkward black plastic clips that no one could quite figure out how to operate.

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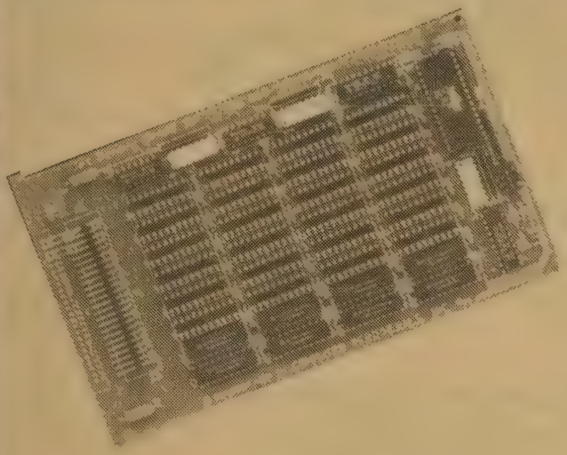

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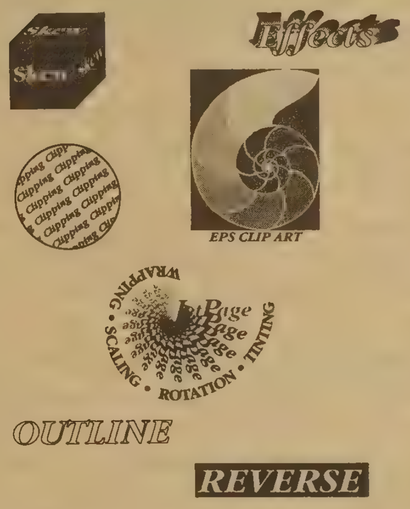

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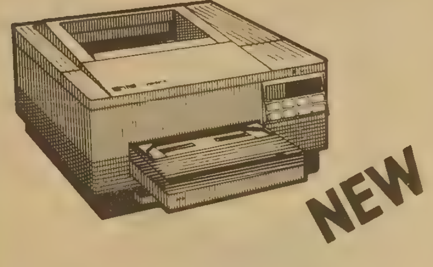

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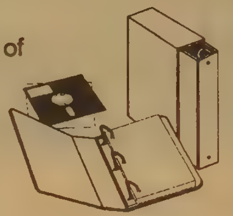

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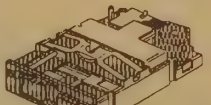

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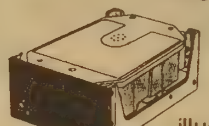

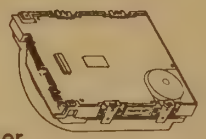

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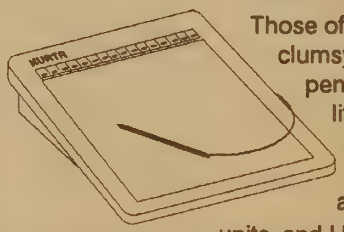

Those of you who have used a mouse with a CAD or other graphics-intensive program know how clumsy and tiring that can get. The answer? Use a graphics tablet! It's as natural as holding a pen! If you've shopped for a graphics tablet lately, you probably decided to use your mouse a little longer. They are hard to find, and expensive to buy...but HSC can help! We have a limited quantity of Kurta Series One Graphics Tablets at a fabulous price. These units have a 12" by 12" drawing area with 10 control keys and 12 function keys, use a serial interface and have a pen as the pointing device. The resolution is 200ppi. These are like-new demo units, and HSC will offer a 90-day warranty on them. At **$179.00**, they will go fast, so don't delay!

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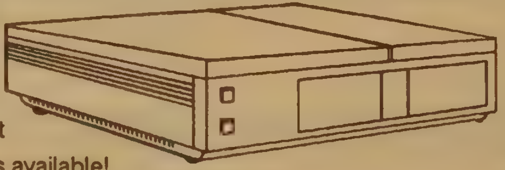

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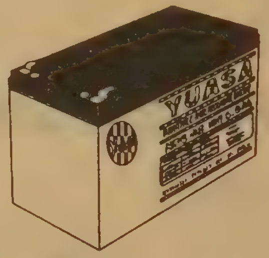

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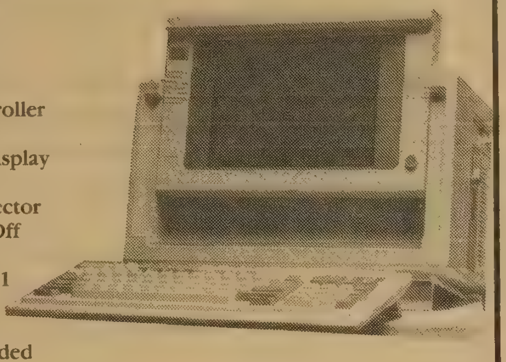

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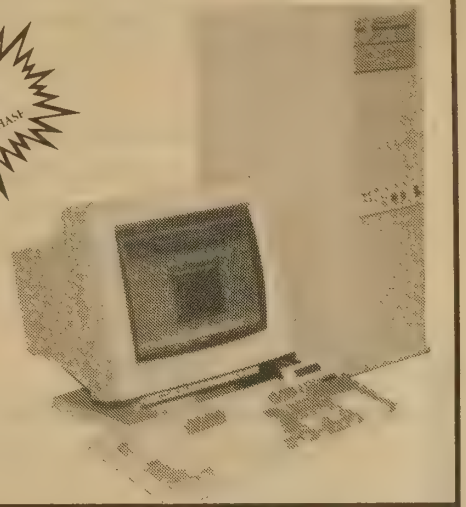

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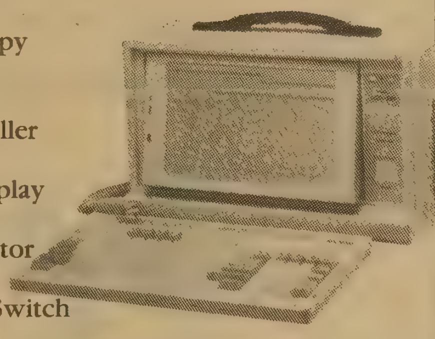

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The badges kept falling off, and at the end of each day we had quite a collection in the BMUG booth.

6) The most unusual visitor to the BMUG booth was:

- **a)** a clown dressed as Clarus the Dog-Cow
- **b)** a hard disk manufacturer bearing gifts
- **c)** a former hard disk manufacturer with questions.

Answer: C. Dennis Chang, former boss of Jasmine Computer Systems (now pulling its way out of bankruptcy without the leadership of its former CEO), was looking for some advice on what software he should bundle with a new hard disk. It looks like he's getting back into the driver's seat. He was dressed for the occasion in an all-leather outfit, although it wasn't that rough to fight the crowds around the booth.

Bernard Aboba, BMUG telecommunications guru, suggests the following software to Dennis:

- MacLawyer would aid in filing small claims court suits, just in case the new drive company didn't honor their warranty.
- WillWriter. When a user's 100 Mb drive with all the accounting data goes down, it would pay to be ready for the accompanying heart attack.
- Managing Your Money. Most people have their checkbooks balanced to their satisfaction, but this one would be for drive manufacturers who can't seem to get their cash flow projections straightened out.

Another hard disk manufacturer had something else in mind when he paid a visit to the booth. He had some idea of putting Steve Costa, BMUG's technical coordinator, on the payroll. Steve wouldn't have to do anything to earn a nice extra income, but it was understood that this brand of drives might make it on the BMUG Choice Product list. Steve told him where he could stick his bribes and his drives!

So how did you do on the quiz? If you scored 100%, you must have been working in the BMUG booth, or perhaps you were following me around the floor on the old vendor trail. If so, you saw a few products lying cold in the dust. I only crashed three demonstrations. The best was one of the many mouse substitutes. I clicked **calibrate** in the device's Control Panel Document—wouldn't anyone? Unfortunately the booth wasn't constructed with crashes in mind, and the representative had to take half the thing apart to restart the Mac. He yelled, "Why'd you do that?" Have Finger, Will Click.

UPCOMING EVENTS:

June 21	Ron Harwin (ergonomics); Ensign Point of Sale.
June 27	SF BMUG West Meeting at Exploratorium. TBA
June 28	Aura Systems Scuzzy Graph II, Adaptec Modem.
July 5	Acropolis Software (label printer), Dayna Corporation DaynaNet.
July 12	Ashton-Tate FullImpact, Software Business Technology Database Accounting Library.
July 19	Asuka (color hand scanner), Letraset LetraStuff.
July 25	SF BMUG West Meeting VPL Research (virtual reality stuff).
July 26	Traveling Software LapLink Mac III, Outward Bound (portable Mac).

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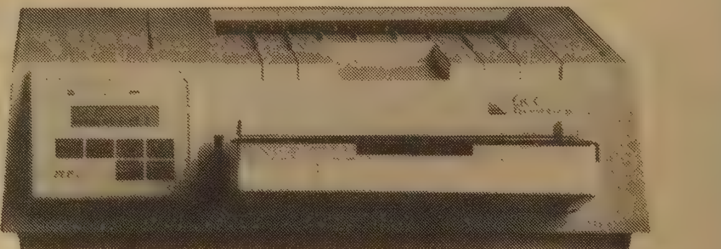

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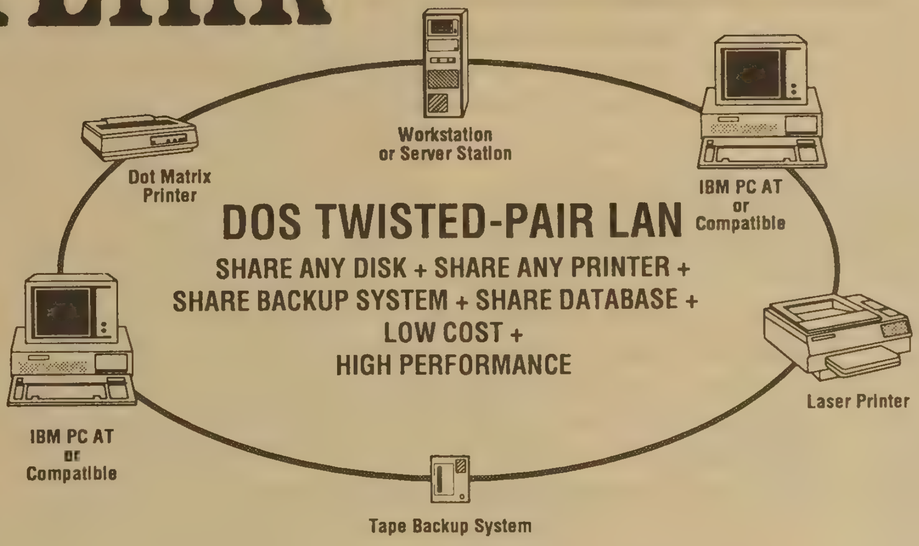
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WHAT IS BMUG?

BMUG is a educational non-profit consumer advocacy group organized to share information, and provide critical direction to users and developers in the computer community worldwide.

Like any growing organization, it is many different things to its 10,000 international membership. BMUG supports many Special Interest Groups (SIGs), an eight-line Bulletin Board System (BBS), a free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:00 to 9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG HelpLine, (415)849-HELP, and our fax number, (415)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am-5:30 pm.). If your question can't be answered on the spot, we try to get you in touch with someone that can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 400+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the **PD ROM™ 2.0**, our entire library and more on CD-ROM—according to Apple, it's the best selling CD-ROM!

Our BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is now a part of the international USENET network (**apple!bmug!user.name@sun.com**) or (**user.name@BMUG.FIDONET.ORG**). With our multi-line capability you are now able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG, please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (415)549-BMUG, or Fax (415)849-9026.

EXPOZ FACTOZ

Here are a few more Expo stories and highlights that you might have missed:

• Acius showed the new word processing, drawing, and graphing modules for their 4th Dimension database. These products combine in interesting ways to create a very powerful programmable integrated package. A floor plan filled with graphic objects representing office equipment is part of a database record, where their cost and price is being totaled. Forget what all the little blue boxes symbolize? You can search on color, or any other attribute.

Even better was the demonstration of 4D Hotlinks, which provide a way for the modules to interact. Information pasted into one module is updated from the originating document, reflecting any changes that have taken place. System 7.0 will do something like this between applications, but reportedly the documents will have to be open for the links to work. 4D Hotlinks will check a closed file for information.

• The prices of 24-bit video display boards for Mac IIs are falling, while the options and power are flying. I was blown away by the RasterOps 364 board. It works as an ordinary 24-bit color board, frame grabber, and real-time video display. Unlike some of its competitors, the video window is resizable. They have a TV tuner add-on with a speaker and headphone jack so you can watch baseball or Perry Mason reruns while playing your favorite games.

• BMUG and the Stanford Mac Users Group (SMUG) helped run a user group hospitality suite at the Expo. Users from around the United States, Japan, Mexico, and Amsterdam traded stories. I met Jan Adams and Rebecca Gordon, who were heading that week to South Africa to help the Mass Democratic movement with desktop

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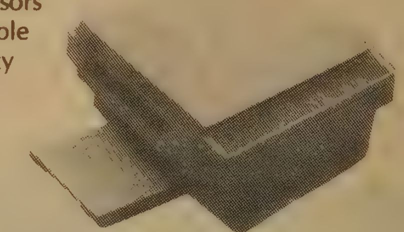

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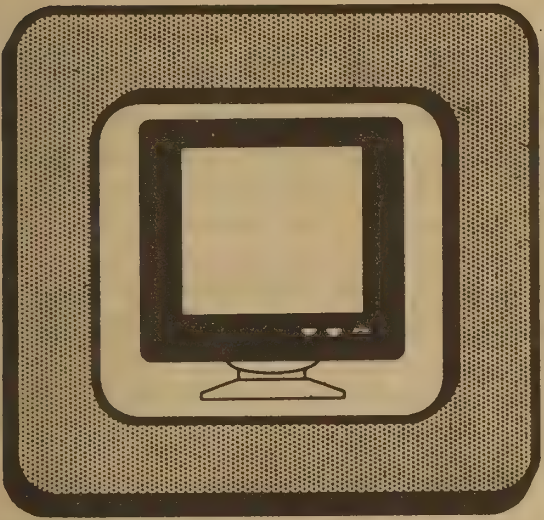

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publishing. They are setting up an ongoing volunteer program under the auspices of the Berkeley-based Tecnica organization.

> **Patience was not a virtue to a number of the fat cats, who elbowed their way forward, refusing to line up, and voiced the idea of an ad-tocracy—the more advertising one does with the magazines, the better the place in line. "Nobody buys more space than me," crowed a very loud example of the Ugly Macintosher.**

BMUG helped out visitors to the Expo by creating the San Francisco Survival Stack. There is a little of everything in the stack, including a tour, shopping areas, maps, parking rules, and even radio stations. There are restaurant recommendations in over 58 categories! The design was by HyperCard artist Jeannene Hansen of Junior Hansen Jr.

- A program that would be a lot of fun at parties, or perhaps a new Mac business opportunity, is Astrix by Microseeds Publishing. Astrix creates daily and natal horoscopes, as well as charts for users. Predictions are divided into subjects, career/finance, family/friends, conflicts, and romance. I was told that I might find romance through volunteer work. Do you think I'm getting too attached to my new Mac II? What will my wife say—that she hasn't already?
- I really enjoyed the new CD Companion Series by the Voyager Company. These are interactive lessons on famous pieces of music—at the moment, Stravinsky's *Rite of Spring* and Beethoven's *Ninth Symphony.* The disks contain the works in audio format and an accompanying multi-part HyperCard presentation on the composer, random access musical analysis, and even a quiz in the form of a game. It's educational, fun, and really shows the future power of interactive educational tools. Voyager also handles the wonderful AmandaStories by Amanda Goodenough.
- Terry Kuenzli Enterprises of Campbell had a low-tech and low-cost aid for anyone doing desktop publishing. It's a Designer's Key that shows the differences between 300/1270/2540 dpi printing for line weights, bullets, shade screens and type. It's especially good for showing lower resolution work to clients and helping them imagine the final output. Terry's fax number is (408)379-4746.
- Charles Colby was showing a "heads up" display for the Mac at the CD-ROM booth. It was a unique device, a little gray box about three inches long, and an inch wide, with a hole in it attached to a headband. You pivot the little box in front of your eye, and the Mac screen is displayed in front of you in red. This is done with an LED array and a mirror that vibrates at 60Hz. It scans the linear array of perhaps 250 LEDs across your eye, simulating a television screen.

That's it, the fun's over. Everyone has to go back home to their Macs and families. We'll all remember the great time we had and the friends we made. Camp Expo will just be a fond memory, or a pile of receipts. But cheer up, campers. The next San Francisco Expo is less than a year away, and Head Counselor Sculley says that next time we'll get to see System 7.0! Okay! ■

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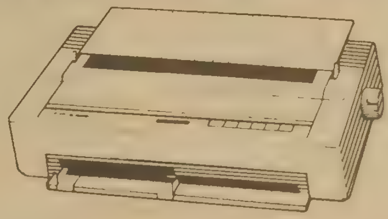

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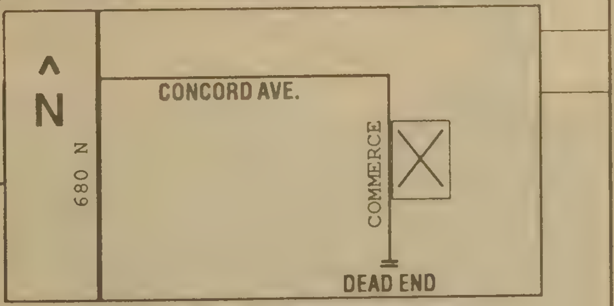

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The Amiga 3000—Hands On

BY MATTHEW LEEDS

AMIGA

I've had a little time to work with the A3000 in the past weeks and although the machine is still using a pre-release version of the new operating system, I thought it would be appropriate to share some of my thoughts and experiences.

GENERAL IMPRESSIONS

The machine is fast. I keep looking for the gear shift, trying to move into a lower gear. Everything happens faster: windows open sooner, programs load quicker, and games (those that work) become impossible to keep up with.

The machine is also noisy. The fan is one of those high-speed small-diameter types. I'd much prefer a larger-diameter fan that revolved at a slower rate, but the case is so low-profile there's no room for a larger fan.

The keyboard is not crisp enough for me. It feels mushy, and I find I have a hard time working as fast as on the A1000 keyboard. The connectors for the keyboard and the mouse have been moved from the front to the right side, a vast improvement, but it may cause problems for those who use a computer desk with a recessed compartment for the CPU.

The power switch, however, has been moved from the back to the front. This is also a vast improvement. The switch is recessed, and is a push on/push off type instead of a rocker. This should make it difficult to accidentally turn the machine off.

The machine's real estate is packed; between the connectors, the fan, and the space for expansion card connectors, there's not much room left.

Of special interest are the SCSI port and the VDE (Video Display Enhancer) port. The SCSI support on the A3000 is on the motherboard, and it includes support for SCSI-2, a more robust implementation of that interface. The VDE port supports VGA scan rate monitors, and effectively removes the flicker from all display modes. It should not be used in the new SuperHires mode, as not all of the pixels get passed correctly. The same would occur on an A2000 equipped with the new chip set and a FlickerFixer from Microway.

Copyright © 1990. All rights reserved. Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

INSIDE THE A3000

Getting inside the A3000 brings back memories of the first time I opened an A2000. The two pairs of screws on either side are obvious, but the additional screw on the back is harder to find, lost among the screws holding the fan in place. The manual does, however, mention it.

It also mentions using caution while removing the cover to avoid catching wires, but does not explain why a metal tab, attached to the center rear of the cover (the fifth screw attaches to this) does not have a ramp to route wires past it as you slide it off. This tab catches the drive-connecting wire harness every time you remove the top cover. Not good engineering.

Also not good engineering is the placement of several components inside the case. There are two banks of RAM sockets that the user can add RAM to—the chip bank and the fast bank. The A3000 ships with 1Mb in the chip bank and 1Mb in the fast bank. In most cases, once users decide to add RAM, they'll move the 1Mb in the fast bank into the chip bank and then add more memory to the fast bank. As they find they need more memory, they will continue to add it to the fast bank of RAM.

The chip bank is easily accessed once you remove the cover. However, the fast bank can only be accessed by removing the drive-mounting platform that holds the floppy and hard drives. This requires removing more screws, including one that is almost impossible to locate.

In addition, three cables must be disconnected from the motherboard, two of which are not keyed and have no orientation markings. The amount of slack in the cables is minimal, making it difficult to raise the mounting platform sufficiently to gain access to the cable sockets. Also, once the screws holding the mounting platform have been removed, any installed floppy drives are no longer attached to the mounting platform, and can slide off if the platform is tipped, perhaps while you're trying to reach a drive cable.

Commodore has produced a compact, speedy, and expandable computer that provides an excellent price/performance ratio.

This is one instance where Commodore should have taken a lesson from Apple. Any Mac II can be opened without tools, and gaining access to RAM expansion sockets is generally easy. Mounting screws are in logical places, and easy to gain access to. Fortunately, average users will not have many occasions to open up their machine.

None of this takes away from the amazing power the A3000 provides. Commodore has produced a compact, speedy, and expandable computer that provides an excellent price/performance ratio.

THE NEW OPERATING SYSTEM

I mentioned earlier that the A3000 I'm using came with a pre-production version of the new operating system. Since the A3000 is not yet available to the general public, and since Commodore is still fine-tuning the new OS, it may not be appropriate to draw hard conclusions regarding its effect on the current base of software. Still, there are some issues that I expect will exist regardless of what Commodore does to V2.0 between now and its eventual release.

A lot of software will not run under V2.0, and in many cases this will be a continuing

continued on page 188

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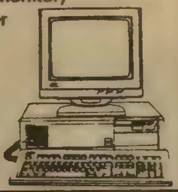

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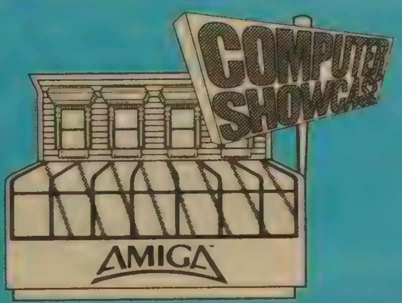

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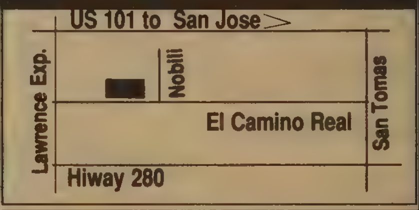

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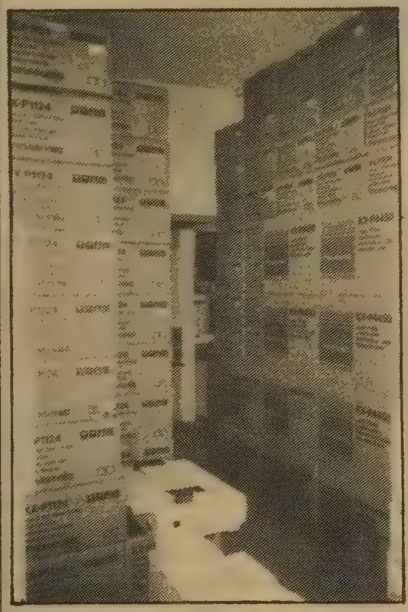

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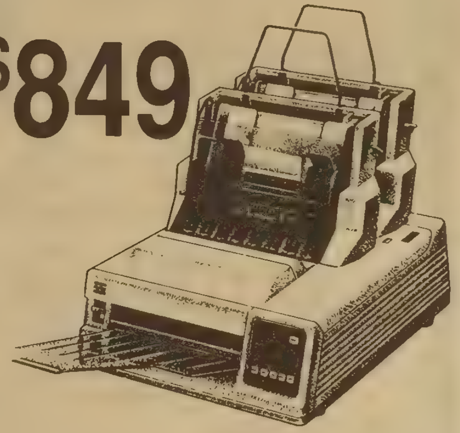

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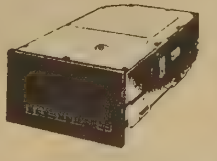

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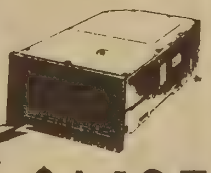

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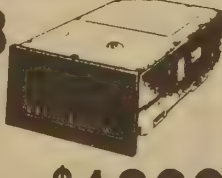

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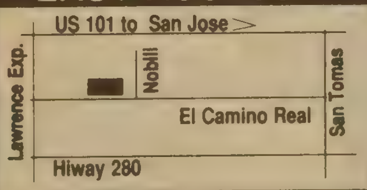

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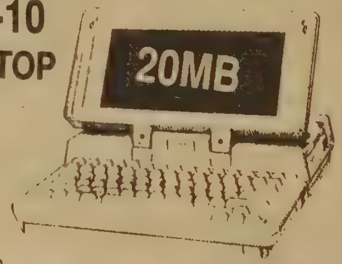

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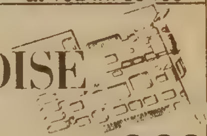

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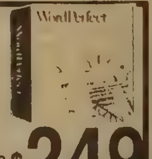

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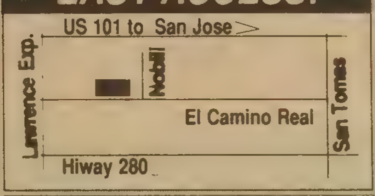

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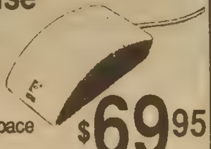

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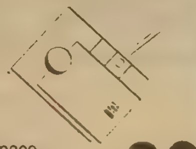

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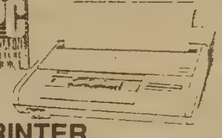

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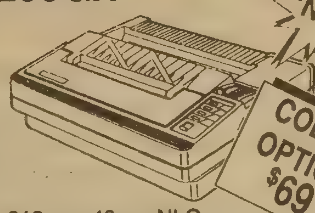

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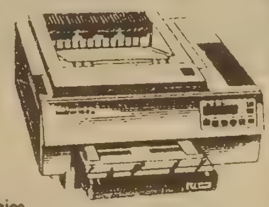

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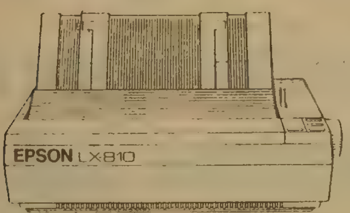

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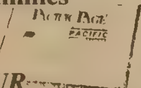

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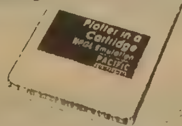

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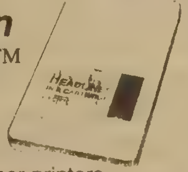

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Atari Lowers Prices

BY DAVID HAWKINS

ATARI ST

Atari has dropped the list price on a number of its products. The ST520 now has a list price of $399, and you could probably get it for less than that. The Mega4 ST has a list price under $1700, which is great for a computer with 4Mb of memory! The Atari Laser Printer is now selling around $1200.

So if you're looking for a computer, check with an Atari dealer about what would work for you. Personally, I'm starting to dream of a Mega4, but my budget is telling me to get a ST520 and a 4 Mb memory upgrade.

In the next few months I plan on reviewing some of the equipment add-ons you can get for the Atari: a fax modem, optical scanners, and other items that are now available. I haven't been caught up in the fax craze so far, but if I can do it all from my ST...

MORE PUBLIC DOMAIN SOFTWARE

Last month I mentioned Gemini, a desktop replacement. The documentation files for Gemini are now available in English. They've been translated from German, which is a real help for some of us.

Also, I talked about vkiller, which helps guard your disks from viruses. If you find vkiller, you'll probably also find a program called flu. The flu program shows how viruses look to the user. It does not include actual virus code, but instead has a menu where you can select viruses and see how they would work on your system. It can be handy to know what a virus looks like.

By the way, in the interest of spreading paranoia, I would recommend that if you are going to get either vkiller or flu, get them from a trusted source, like a user's group with a knowledgeable disk librarian. If someone wanted to spread a virus, one thing they might do is give it the name of a virus killer. Sneaky, eh?

The Atari version of the Pyro! screen saver program is now available in a version that lets you configure how long the system waits for keyboard or mouse activity before blanking. The original Pyro blanked after five minutes, but now you can set the time delay.

ANTIBOMB

If you run a program on the Atari and it crashes, it puts up a few bomb symbols on the left side of the screen; the computer just waits for you to either turn it off and on, or reset it. A new program, called antibomb, presents a dialog box and offers you the opportunity to try to continue with that program or reboot the system.

You can do a WarmBoot, which is the same as using the Reset button on the back of the computer, or ColdBoot, which is like turning the computer off and waiting a minute before turning the computer back on. However, there will probably still be some crashes that will baffle even this program.

By the way, this does not imply that a lot of programs bomb. I get very few of these. But if I were programming and developing, a quick way to reset might be a very handy tool.

POOLFIX3

There's a newer version of TOS, the Atari's operating system, called Rainbow TOS, or STe TOS. It has a lot of nice features, like allowing resets from the keyboard, and it's faster. I've been using Rainbow TOS a little, and it is nice to be able to format disks for IBM/MS-DOS computers. Earlier versions of TOS could read IBM formatted disks, but couldn't format for the IBM.

There's a minor bug in the newer TOS that you would probably never run into. But there's a fix for it anyway, called poolfix3. It's an official fix from Atari and should be available at all the usual sources.

WRITE ATARI!

There's a letter-writing campaign directed at Atari, the purpose being to encourage Atari to do more advertising and marketing of the ST in the United States. If you would like to do this, write to Sam Tramiel, President, Atari (US) Corporation, 1196 Borregas Ave., Sunnyvale, CA, 94086. I've seen two sample letters, and you might be able to find a copy at a user's group. If you need a general idea of what to say, start off by saying how much you like the ST and how much you'd like to see it being promoted more in the United States. ■

Atari's new operating system lets you format disks for IBM/MS-DOS computers. Earlier versions of TOS could read IBM formatted disks, but couldn't format for the IBM.

Copyright © 1990 by David Hawkins. All rights reserved. David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco. Both monitors, an Okimate 20 color printer, and disks are all over the room.

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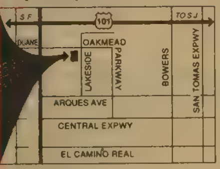

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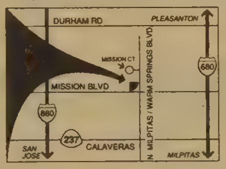

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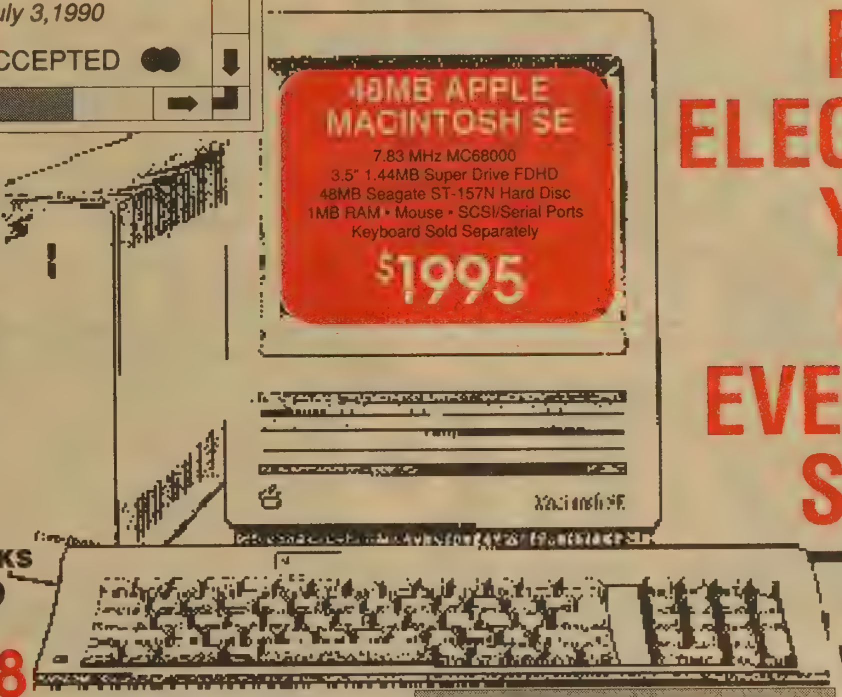

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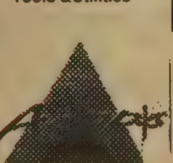

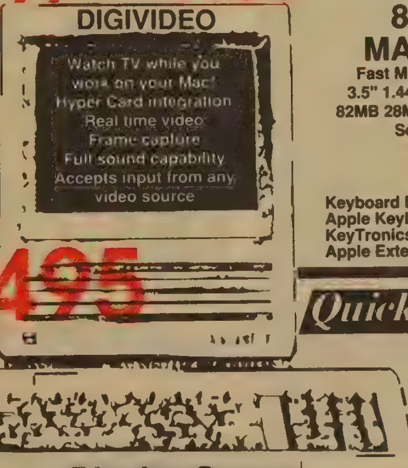

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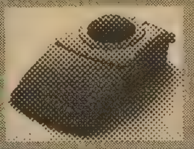

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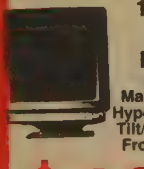

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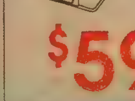

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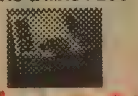

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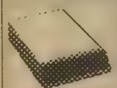

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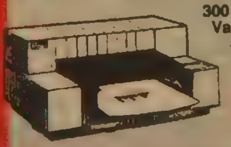

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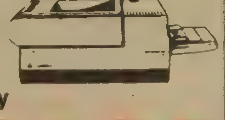

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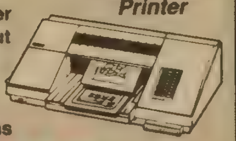

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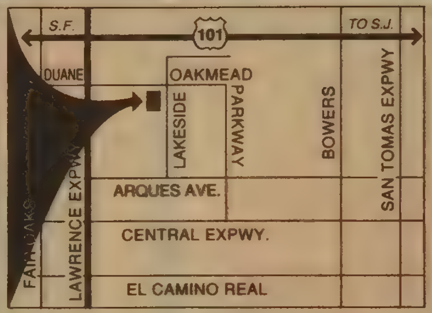

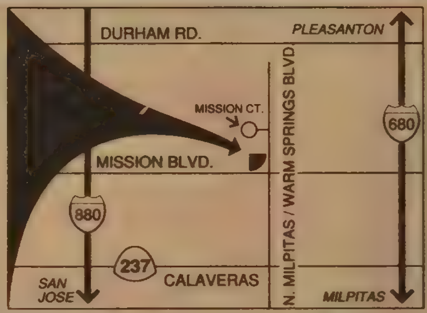

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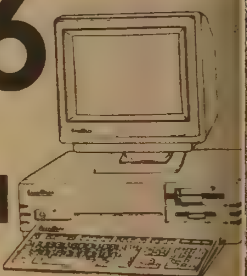

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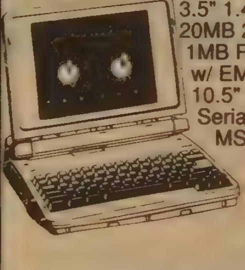

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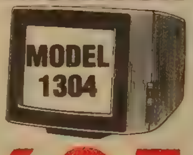

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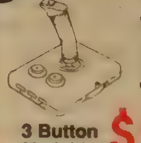

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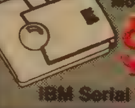

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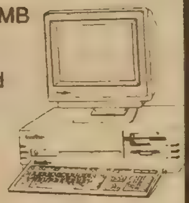

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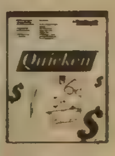

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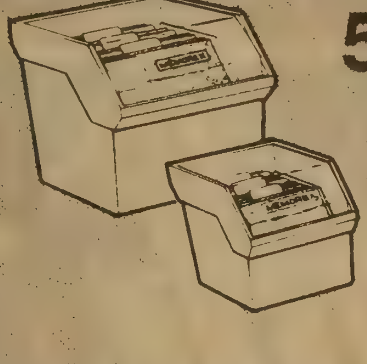

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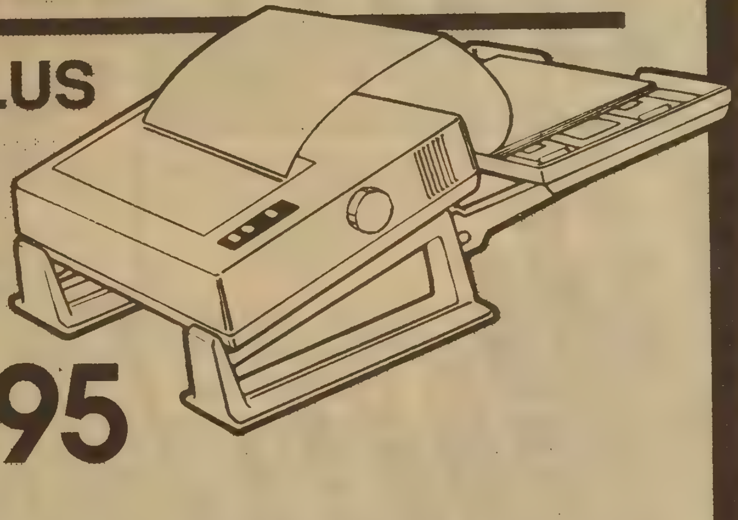

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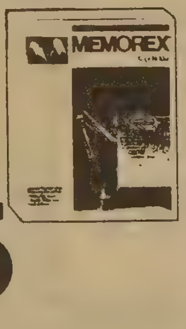

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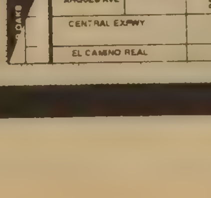

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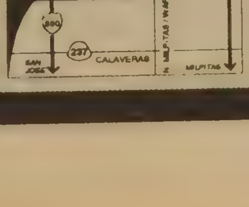

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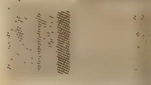

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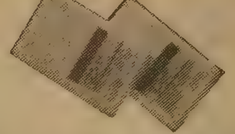

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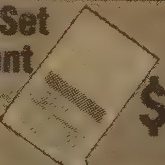

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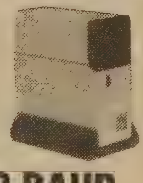

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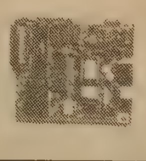

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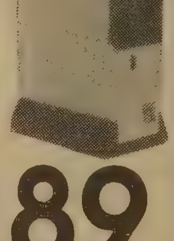

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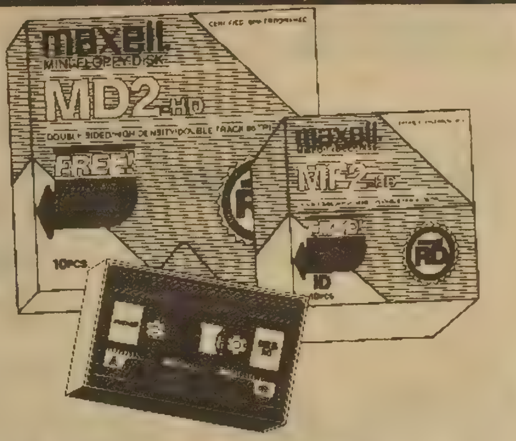
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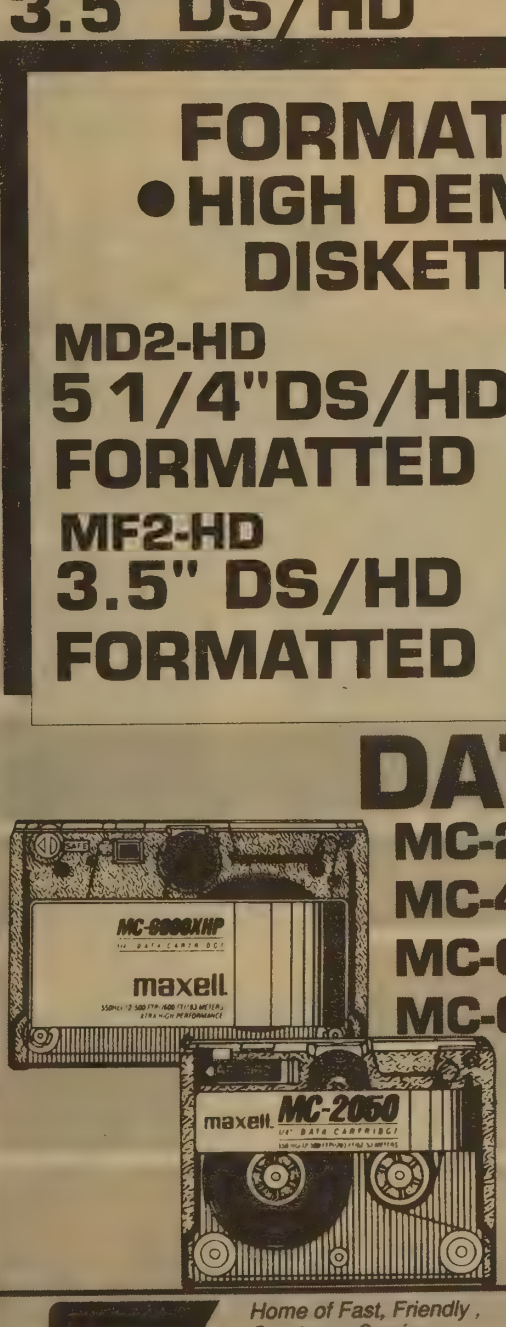
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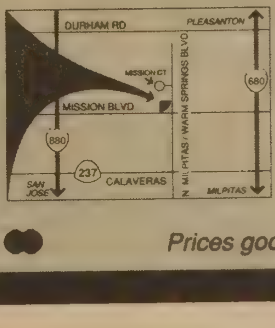
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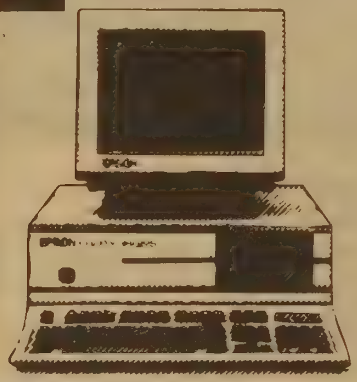

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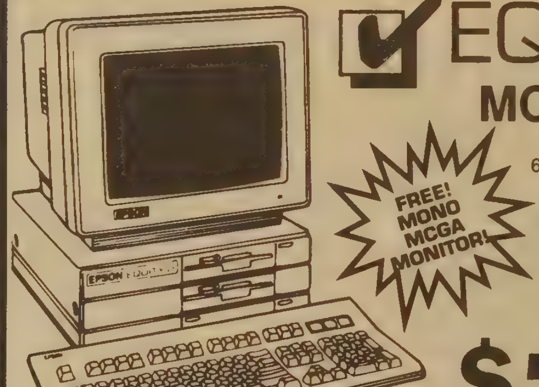

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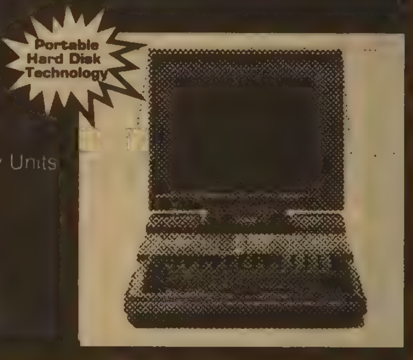

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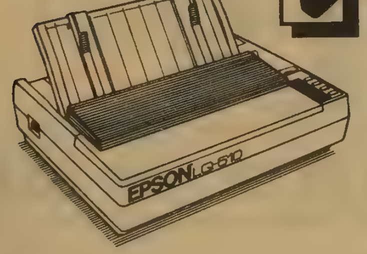

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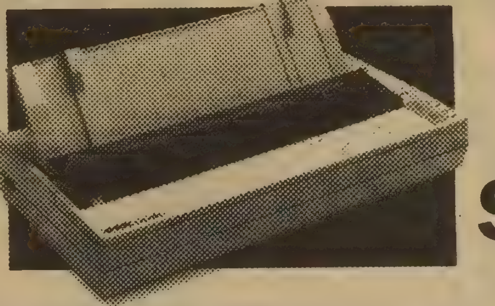

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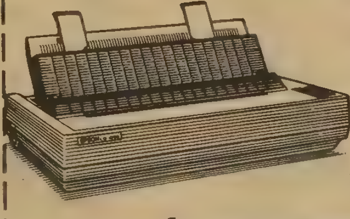

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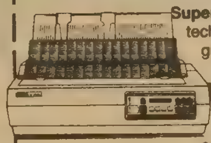

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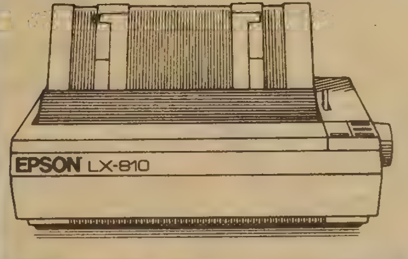

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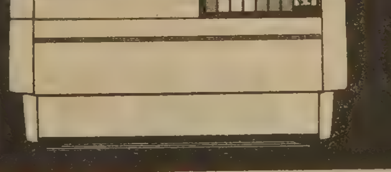

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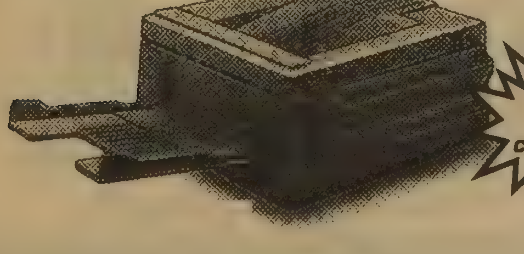

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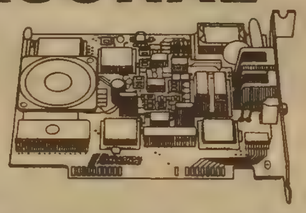

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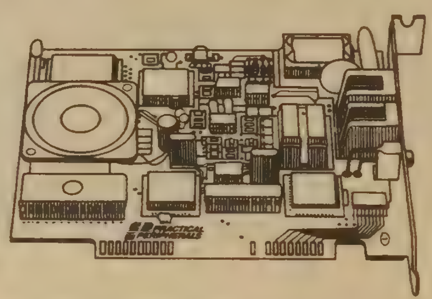

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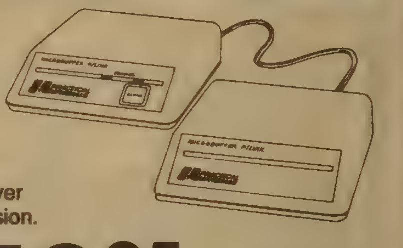

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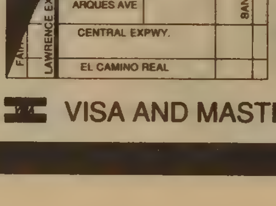
HOURS: MON-FRI 8AM-9PM; SAT 9AM-7PM; SUN 9AM-6PM


S.F.
101
TO S.J.
DUANE
OAKMEAD
LAKESIDE
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BOWERS
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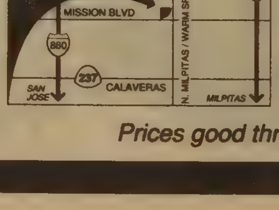
DURHAM RD.
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MISSION CT
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We Never Underestimate the Power of Your Laser Printer

Plotter in a Cartridge
HPGL Emulation
PACIFIC
Plotter in a Cartridge
HPGL Emulation
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Headlines in a Cartridge
PACIFIC
25inOne!
III
PACIFIC
POSTSCRIPT EMULATION
PACIFIC MACPAGE P•E
PACIFIC
POSTSCRIPT EMULATION
PACIFIC PAGE
PERSONAL-EDITION
PACIFIC
POSTSCRIPT EMULATION
PACIFIC PAGE
PACIFIC

II & IIP
$259

LJ II
$199

LJ III
$395
LJ II
$299

PE ADOBE
$395
LJ IIP & III
$499
MAC $695

LJIIP
$369

LJ II
$469

Why Should You?

At Pacific Data Products, we're continuously looking for ways to increase the power and versatility of your laser printer. Shouldn't you be doing the same? A good place to start is with Pacific Data's complete line of laser printer enhancements.

25 Cartridges in One! and 25 in One! III 172 fonts and symbol sets from 25 different cartridges. Provides fast and easy, yet economical access to fonts for almost any application - like word processing, presentation graphics, and spreadsheet publishing. For HP and Canon laser printers.

Headlines in a Cartridge 18 large sized Helv and Tms Rmn style fonts in those sizes most commonly used for display - 14, 18, 24, 30, 36 and 48 points. Ideal for newsletters, presentation graphics, and proposals. For HP and Canon laser printers.

PacificPage PostScript language emulation cartridge for the HP LaserJet Series II. Simply plug the cartridge into the printer and gain immediate access to the high quality output of a PostScript printer. PacificPage P•E offer the same high quality output for the LaserJet IIP, IID and III.

Pacific MacPage PostScript language emulation cartridge for the LaserJet Series II when used with the Apple Macintosh. Provides Macintosh users with a low cost, easy to use alternative to expensive PostScript printers. Includes cartridge, serial cable and printer drivers. Pacific MacPage P•E is for the LaserJet IIP, IID, and III.

Plotter in a Cartridge Emulates HP-GL on the HP LaserJet Series II. Produces precise, high resolution graphics in a fraction of the time required by pen plotters or PC-based emulations. Plotter in a Cartridge P•E is for the LaserJet IIP and IID.

PacificPrint Networking software option for PacificPage and Plotter in a Cartridge. User's can turn their networked HP LaserJet printers into PostScript or HP-GL compatibles, while continuing to use them in their native PCL mode.

1-2-4 Plus Upgradeable memory board for HP and Canon laser printers. Simply plug in 1, 2, or 4 MB of additional printer memory as needs and applications change.

2 Plus 2 Upgradeable memory board for the HP LaserJet IIP and III. Each board can be configured with 1 or 2 MB of memory. If applications demand 3 or 4 MB, simply add another board to the printers second memory slot.

LP Memory Upgradeable memory board for the IBM LaserPrinter 4019. The board uses 1 megabit memory chips and can be assembled with 1, 2, or 3.5 MB of extra printer memory.

ELECTRONICS
Fry's

25 Cartridges in One!, 25 in One! III, Headlines in a Cartridge, PacificPage, Pacific MacPage, PacificPrint, Plotter in a Cartridge, 1-2-4 Plus, 2 Plus 2, and LP Memory are trademarks of Pacific Data Products, Inc. All other company and product names are trademarks of the company or manufacturer respectively. Copyright 1990 by Pacific Data Products, Inc. Made in the U.S. A. by Pacific Data Products, Inc.

PRINTER SHARING/PRINT SPOOLING

DATA MANAGER

Data Manager products allow laser printers, plotters, and other output devices to be shared by any number of computers. Data Managers are easy to install and use. No special software required!
Operation is COMPLETELY TRANSPARENT to the user.

DATA MANAGER DM-60 - 5 users to 1 printer
Serial or Parallel - up to 1,000 ft on Twisted-Pair

- **Serial or Parallel to 1000ft**
- **5+ users simultaneously share 256K buffer (expandable to 1 megabyte)**
- **100% transparent - no software required**

DM-60P Parallel Printer Package:
Base unit with 256K RAM,
3 25ft and 3 10ft RJ-12 cables
6 parallel port connectors

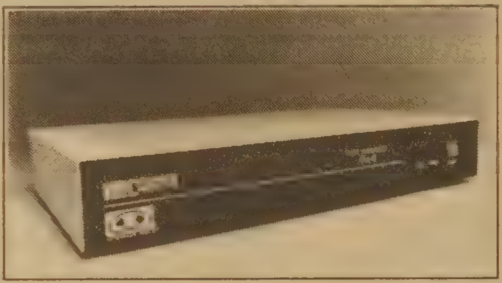
PLU No. 1496608
List Price $795.00
Fry's Price $499

DM-60S Serial Printer Package:
Base unit with 256K RAM,
3 25ft and 3 10ft RJ-12 cables,
11 connectors

PLU No. 1496594
List Price $595.00
Fry's Price $345

DATA MANAGER 4x4
Network multiple users to multiple printers

A Data Manager 4x4 is the perfect alternative to expensive network hardware. No software is required on your computer, and you can connect any number of users to any number of printers or output devices using twisted-pair cable.



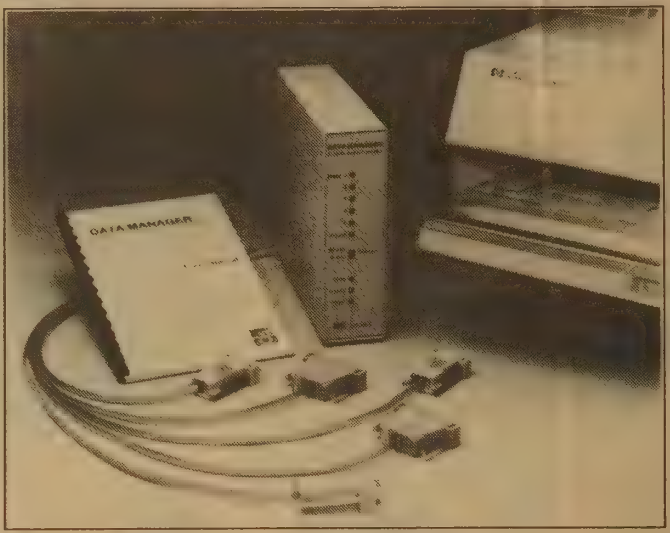
- 4 to 8-port automatic print sharing and spooling devices
- Each port can be either Input or Output - interconnect computers, workstations, printers, plotters, modems...
- 8-port unit connects 7 users to 1 printer, 1 user to 7 printers, or any combination of Inputs and Outputs
- Daisy-chain more units for additional users or outputs
- Internal microprocessor automatically manages data flow
- Internal 256K spooler/buffer expandable to 1 Megabyte
- Serial and/or Parallel interfaces supported
- Use with twisted-pair cable lengths up to 1,000 feet

PLU No.	Model No.	Input Ports	Output Ports	Total Ports	Mfr. Sugg. Retail	Fry's Price
1496620	DM40	4 Serial	4 Serial	4	$495.00	$349.00
1496619	DM42	4 Ser/2 Par	4 Ser/2 Par	6	$695.00	$495.00
1496642	DM42S	6 Serial	6 Serial	6	$695.00	$495.00
1496653	DM44	4 Ser/4 Par	4 Ser/4 Par	8	$895.00	$649.00
87815	DM45	6 Ser/2 Par	6 Ser/2 Par	8	$895.00	$649.00
1496664	DM46	8 Serial	8 Serial	8	$895.00	$649.00
87801	DM07*	5 Serial	1 Serial	6	$595.00	$429.00

*DM07 permanently configured as 5 inputs/1 output

Cables for Data Manager and Auto-T Data Switch

PLU No.	Description	Fry's Price
142473	IBM AT (10 ft 9-pin to 25-pin Serial)	$11.95
142462	IBM PC (8 ft 25-pin to 25-pin Serial)	$11.95

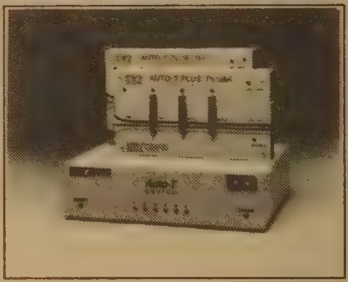


OmniCables™ and Adapters for Data Manager DM-60

Description	List Price	Fry's Price
50 ft RJ-12 twisted-pair ext. cable	$12.50	$12.50
100 ft RJ-12 twisted-pair ext. cable	$25.00	$25.00
Parallel Computer Adapter	$49.95	$39.95
Parallel Printer Adapter	$49.95	$39.95

AUTO-T Automatic Printer Switches
For Serial or Parallel printers

Improve office productivity and protect the warranty of expensive printers with an automatic printer switch from IMC/Data Manager. A significant improvement over manual A-B-C switches that waste time and could damage your printer!



- 4 to 6 users share one printer
  Automatically switches printer to active computer
- Add more users by daisy-chaining Auto-Ts or Data Managers
- Endorsed by leading laser printer manufacturers to satisfy warranty requirements and protect printer against damage
- For use with Serial or Parallel printers
- Supports cable lengths up to 1,000 feet
- One cable included

PLU No.	Model No.	Input Ports	Output Ports	Total Ports	Mfr. Sugg. Retail	Fry's Price
1422038	CCAT-S	4 Serial	1 Serial	5	$179.00	$109.00
1422027	CCAT-P	4 Parallel	1 Parallel	5	$179.00	$119.00
140458	CCAT-6	6 Parallel	1 Parallel	7	$195.00	$149.00
1496697	CCAT-5	6 Serial	1 Serial	7	$195.00	$109.00
1502170	CCAT-4	3 Ser/3 Par	1 Parallel	7	$249.00	$195.00
1502158	CCAT-3	3 Ser/3 Par	1 Serial	7	$249.00	$195.00

OmniCable Parallel Adapters for Data Mngr & Auto-T

PLU No.	Model No.	Description	Mfr. Sugg. Retail	Fry's Price
1496804	DM-PIN	Parallel Port Driver, serial printer connector, power supply, 25ft RJ-12 cable	$69.95	$59.95
1496815	DM-SIN	Serial Port connectors (AT and XT), Parallel Printer driver, power supply, 25ft RJ-12 cable	$69.95	$59.95

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NS16550AFN Serial Communication Uart **$14.99**

2764A 8K X 8 EPROM	27128A 16K X 8 EPROM	27256A 32K X 8 EPROM
250 N.S. $2.49	250 N.S. $2.89	250 N.S. $3.19
200 N.S. $2.99	200 N.S. $3.19	200 N.S. $3.39
150 N.S. $3.99	150 N.S. $3.99	150 N.S. $3.99

CMOS EPROMS AVAILABLE

27C512-150 **$5.99**

27C1MEG-150 **$9.99**

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American Advantech Corp.

$\$174^{95}$
PCL-720
Digital I/O Card
32 Digital Inputs, TTL compatible, low loading • 32 Digital outputs, TTL compat. large driving capacity
3 Timer/counter

75
PCL-750
Protype Card
Built-in basic I/O circuit
Large breadboard area
Memory and I/O decoders
Buffered bus signals • Jumper selectable memory and I/O address

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PCL-755A/755C
Slot Extension Kit
PC/XT/AT slots compatible
Straight pin-to-pin extension for all slot pins • PCL-755C supports 4 extended slots on one external module

PCL-725 Relay Actuator & Isolated D/I Card
8 Relay actuator outputs
8 Opto-isolated digital input
LED indicators to show activated relays
On-board relay driver circuits input signal conditioning
$\$239^{95}$

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Your PC-MultiLab Pkg.
8 Single-ended A/D inputs
One analog output (D/A)
16 Digital inputs /16 Digital outputs
FREE wiring terminal board
FREE LabTech Acquire Data
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	5/6 MHz	8 MHz	10 MHz
XT 8087	$87	$122	$158
AT 80287	$129	$189	$225

80387

16 MHz	20 MHz
$349	$379
25 MHz	33 MHz
$469	$589
SX-16	SX-20
$329	$399

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SATURDAY JUNE 16 FREMONT

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PRECISE AND CONTROLLED HIGH TEMP. FLAME 1300° C 2500° F
ONE SECOND IGNITION SYSTEM
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Butane Refills
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1990 IC MASTER 3 VOL. SET
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Weller®
Convenience That's Remotely Connected
- Compact,Remote Operator Comfort & Convenience
- Self-Feeding Water Reservoir
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- Pencil stand connects to Rt. to Lft. of station
- Storage for 6 temperature -sensing tips

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3.6V LITHIUM AA SIZE CELL
CORONA • CORDOVA PC
ZENITH Z-141, Z-200,
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OLD COMPAQ 286
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3.6V LITHIUM
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Z-248 • TOSHIBA T1100
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Has a Vent User Replaceable
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A SOUND COMBINATION

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JVC 35" COLOR TV W/ 40 WATT AMP AND DOLBY SURROUND SOUND

The Critics say " *The picture quality is really the outstanding feature.*"
" *Horizontal Resolution, at 720 lines, was the highest we have ever tested.*"

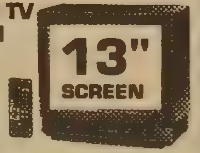
STEREO
COLOR
35" TV

- 35 inch Full-Square, Data Grade Picure Tube
- 180 Channel MTS/SAP Decoder
- 700 Plus Lines of Horizontal Resolution
- Wide Band Video Circuit
- Wide Band Comb Filter
- V.N.R (Video Noise Reduction)
- Built-In Dolby Surround Sound
- 4-Channel Amplifier (40 Watts)

$2497

AV-3589S

JVC COLOR TV WITH "MASTER COMMAND" REMOTE CONTROL



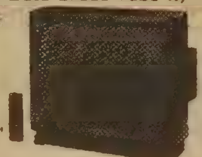
- 13" 180 Channel Cable Ready Remote
- Comprehensive On Screen Menu System
- "Master Command" Remote Control
- Channel Guard for Securing up to 3 Guarded Channels
- 5 Channel Choice and Return Feature
- On-Off Timer

$279

C-1329

JVC 27" STEREO COLOR TV

"MASTER COMMAND REMOTE CONTROL" ON-SCREEN MENU SYSTEM



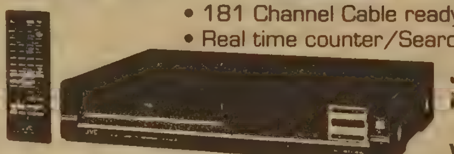
- 27 Inch Full Square Data Grade Tube w/ 600 Plus Line Res.
- MTS/SAP Stereo Sound with JVC "Hyper-bass Sub-Woofer"
- Learning "Master-Command" Remote Control
- On Screen Menu System

$797

AV2779S

JVC HQ VHS VCR ON SCREEN MENU

- 181 Channel Cable ready
- On screen Menu system
- Real time counter/Search/Goto
- Index Search system



JVC invented VHS, the HRD4050 is the best value in a VCR today

$277

HR-D4050U

JVC AM/FM STEREO SURROUND SOUND RECEIVER W/7-BAND GRAPHIC EQ AND A/V REMOTE CONTROL

BEST VALUE

80 WATTS PER CHANNEL

A/V Remote Control (TV,VCR,Audio)
CSRP (Compu-Link. Source. Related. Presetting) • 4 speaker "Surround Sound"

RX503BK

$277

JVC CONTINUOUS PLAY DUAL CASSETTE DECK

DOLBY B NOISE REDUCTION

WOW

- Two Tape Transports
- Continuous Play of Two Tapes
- High Speed Editing and Syncro Dubbing

TDW103BK

$97

JVC AM/FM STEREO RECEIVER WITH 5-BAND GRAPHIC EQUALIZER

- 60 watts of Power per channel
- 40 station FM/AM memory
- Auto Station Presetting
- Preset Scanning
- Connection for 2 Pair of Speakers
- 5-Band Graphic EQ

$179

RX302BLK

JVC AM/FM A/V RECEIVER

60 WATTS PER CHANNEL 5-BAND GRAPHIC EQ

A/V REMOTE CONTROL

- 60 watts of Power Per Channel
- 4 Speaker "Surround Sound"
- 40 station FM/AM Memory
- 5 Band Graphic EQ
- Compu-Link (Controls Other JVC Audio Gear from Remote)

$247

RX403BK

JVC DUAL CASSETTE W/ DOLBY HX PRO

AUTO REVERSE

- High Speed Dubbing Cassette Deck
- JVC U-Turn Auto Reverse System
- Full Logic deck controls System
- Dolby HX PRO with Dolby B/C
- JVC Reciever Remoteable
- Dynamic Detection Record Processor

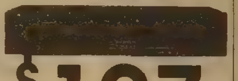
TDW303BK

$177

JVC CD PLAYER WITH 4X OVERSAMPLING

COMPACT disc DIGITAL AUDIO

- Dual D/A Convertors
- JVC Receiver Remoteable
- 32 Track Programmable
- 3 way Repeat

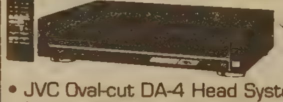


$127

XLV-131BK

JVC 4-HEAD VHS VCR

DIGITAL TRACKING AND ON-SCREEN MENU



HOT NEW UNIT

- JVC Oval-cut DA-4 Head System
- Full Load Mechanism - 1.4 second from Rewind to Play • JVC NEW Intelligent Blank Search Sysytem
- Multi-Color On-Screen Menu System
- Full/Segment Repeat Playback
- Real Time Clock

$347

HR-D660U

JVC 4-HEAD HI-FI STEREO VHS VCR

TV/ VCR UNIFIED REMOTE

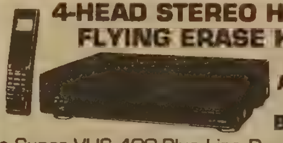
- Picture in Picture with Oval Cut DA 4-Head System Hi-Fi Stereo Sound
- Digital Audio and Video Auto-Tracking
- Duet Editing Capability (Remotely Controls 2 VCR's)
- Dual Screen Programming
- 181 Channel Cable Ready

$597

HR-D850U

JVC S VHS HQ VCR

4-HEAD STEREO HI-FI W/ FLYING ERASE HEAD



LOWEST AD PRICE IN THE BAY AREA

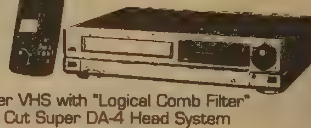
- Super VHS 400-Plus Line Record and Playback Capability
- Hi-Fi VHS Stereo Sound with more than 90db Dynamic Range
- Oval - Cut "Super" DA-4 Head System
- T.S. Head Configuration Eliments Jitter and Head Knocking

$797

HR-S5500U

JVC SUPER VHS VCR

4-HEAD • FLYING ERASE HEAD



- Super VHS with "Logical Comb Filter"
- Oval Cut Super DA-4 Head System with T.S. Head Configuration
- Jog/Shuttle Control Dial on Remote and on VCR
- Flying Erase Head
- JVC new "Silent FullLoad Mechanism"
- Hi-Fi VHS w/New HSNR circuit (Head Switching Noise Reduction)

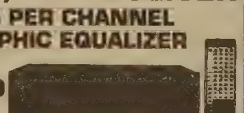
$997

HR-S6600U

JVC AM/FM RECEIVER

100 WATTS PER CHANNEL 7-BAND GRAPHIC EQUALIZER

DOLBY SURROUND SOUND



- 100 Watts Per Channel w/ JVC's Dynamic Super-A Amplifier
- A/V Remote with Sleep Timer
- 40 Station AM/FM Memory
- Controls 2 Video Inputs • C.S.R.P.
- 7 Band Electronic EQ w/ Preset Capability
- Power Rated into 4 ohms and 8 ohms Speakers

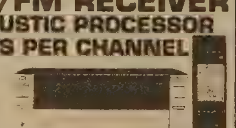
$397

RX703VBK

JVC AM/FM RECEIVER

DIGITAL ACOUSTIC PROCESSOR 120 WATTS PER CHANNEL

DOLBY SURROUND SOUND



- High Current 120 Watts of Power Per Channel • S-VHS Control Capable
- LCD touch sensitive remote control
- Dolby Pre-Logic Surround Sound
- Digitaly Accoustic Processor (D.A.P.) for Creating Your Own Listening Environment!

RX1010TN

$1197

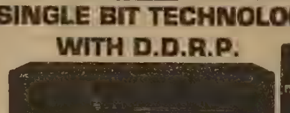
JVC S VHS CAMCORDER WITH HI-FI STEREO SOUND

- Super VHS for Super420 lines plus Pictures
- Hi Fi VHS Stereo Sound w/Record Llevel Display • Audio Dubbing
- JVC "Super" DA-4 Oval Cut Heads for Iincreased Picture Performance
- Flying Erase Head • Only 4.5 pounds
- 8X 2 speed f/1.2 Power Zoom
- TallyLlamp

GRS707U

$1797

JVC HQ VHS VCR WITH SINGLE BIT TECHNOLOGY WITH D.D.R.P.



- 8 Times Oversampling with 4th Order Noise Shaper
- JVC New "Pulse, Edge, Modulation" High Resolution Digital to Anolog Converter (20 bit Resolution)
- Remote Control w/Volume to tape with JVC Dynamic Detection Record Processor

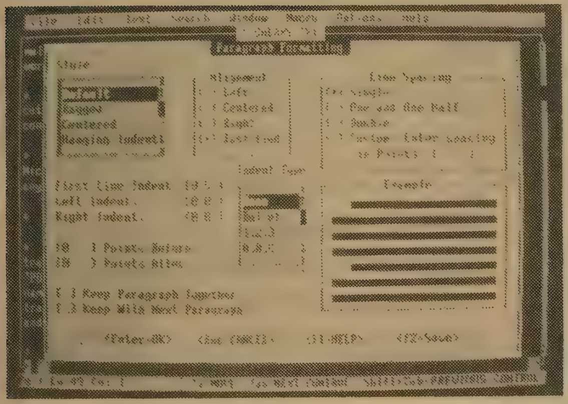
XLV-431BK

$247

PRODUCT SPOTLIGHT

New Products

OMNIVERSE ENTERS THE NEXT GALAXY



Omniverse Software has significantly redesigned and enhanced Galaxy word processor. Version 3.0 incorporates an SAA (Standard Application Architecture) interface. Galaxy 3.0 includes Microlytics Spellfinder dictionary and Wordfinder thesaurus, a document retrieval system, an extensive printer library with complete font capabilities and a toll-free number for technical support. Suggested list price is $99.95 optional addon dictionary thesaurus sets in ten languages will retail for $49.95. Black's Law dictionary and Stedman's Medical dictionary are available for $69.95. Omniverse Software Corp., P.O. Box 1570, Port Townsend, WA 98388. 1-800-365-7627.

NETWORKING WITH RIGHTWRITER

Right Writer
Right Writer

RightWriter is an expert system that uses parser technology to analyze business and technical writing. It helps improve writing by pointing out wordy and redundant phrases, weak sentences, and overused words. For example, RightWriter tells you "consensus of opinion" is redundant. It will suggest replacing "between you and I" with "between you and me." RightWriter also finds noun-verb disagreement, cliches, slang, passive voice, incomplete sentences and jargon.

The new network version of RightWriter 3.1 includes more than 4500 rules to catch common writing errors, and works on Novell and 3Com networks. It is compatible with all major word processors, including Microsoft Word, WordPerfect, and WordStar, as well as Multimate and any ASCII document. RightSoft, Inc., 4545 Samuel St., Sarasota, FL 34233. (813)923-0233.

UNISON WORLD CHARTS THE CHAIN OF COMMAND

Chain of Command, by Unison World, is a complete organization chart publishing package that allows you to prepare professional presentations in minutes. This powerful chart-making utility can be used by managers and professionals with little or no training. Chain of Com-

PRODUCT UPDATES

➡ **Clarion Software** has released version **2.1** of the **Clarion Professional Developer**, a comprehensive database application development system. Contact: Clarion Software, 150 East Sample Rd., Pompano Beach, FL 33064. (305)785-4555.

➡ **Symsoft Corporation** has introduced **HotShot Graphics 1.7**, an upgrade to its PC graphics software. The new version is a capture, conversion and editing utility to allow the capture of DOS, MS Windows and OS/2 Presentation Manager screens. Contact: Symsoft Corp., 444 First St., Los Altos, CA 94022. (415)941-1550.

➡ **Lotus** has begun shipping **Symphony 2.2**, the multi-function, integrated PC software package. They also announced a special upgrade price for registered users who upgrade directly from Lotus between today and June 30, 1990. Contact: Lotus Development Corp., 55 Cambridge Pkwy., Cambridge, MA 02142. (617)577-8500.

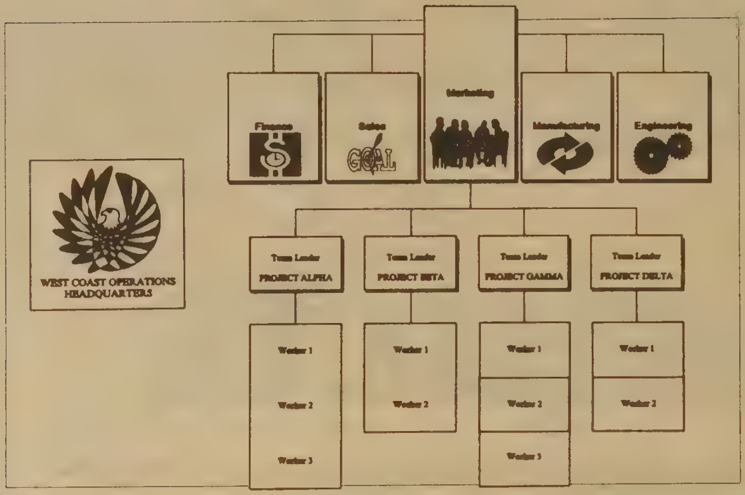
➡ **Oracle** is now offering version **5.1C** of **Professional Oracle Tools and Database for MS-DOS**, with a new menu-driven command shell interface, added support for third-party memory managers, and Microsoft Windows 286. Contact Oracle Corp., 20 Davis Dr., Belmont, CA 94002. 1-800-345-3267.

➡ Version **2.12** of **Novell's Entry Level System NetWare Level I** is now available. It allows people in small businesses and independent workgroups of four or fewer workstations to share printers, applications, hard disks and data through a NetWare server. Upgrades from v.2.0a costs $380. Contact Novell, Inc., 122 East 1700 South, Provo, UT 84606. (801)379-5900 or 1-800-453-1267.

➡ **Publish It! 3**, the latest version of Publish It! by **Timeworks** is now available. Publish It! 3 includes improved compatibility, increased PostScript, PrintShop IIGS and Newsroom Graphics support. For registered users the upgrade costs $30. Contact Timeworks, 444 Lake Cook Rd., Deerfield, IL 60015. (708)948-9200.

➡ **KnowledgePoint** released the upgraded version **2.20** of **Personnel Policy Expert**, software that writes personnel policies tailored to the user's needs. The 2.20 release features new policy topics, including Emergency Closing and Drug Testing, as well as minor technical enhancements. Contact KnowledgePoint, 1311 Clegg St., Petaluma, CA 94954. (707)762-0333.

➡ **Rupp Corp.** has introduced version **2.0** of its hard disk locking software utility, **FastLock**, that includes a Default Password, Master Password, and the ability to lock a drive from the DOS prompt or from a batch file. Upgrades from v.1.0 are available fro $19.95. Contact Rupp Corporation, 7285 Franklin Ave., Los Angeles, CA 90046. (213)850-5394.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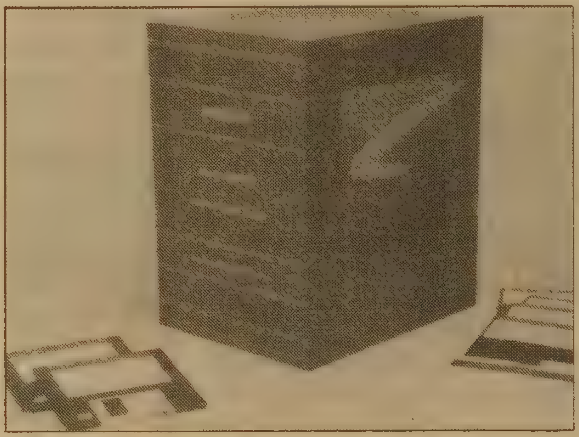
Worker 3

mand comes with a Graphics Library that includes fifty images from Marketing Graphics, Inc.'s PicturePak clip art series, and allows users to import scanned images or graphics. The program automates fit-to-page printing (where the chart is scaled and laid out to fit any given page), so every chart or portion of a chart always looks its best. ($149.95). Kyocera Unison, Inc., 1321 Harbor Bay Pkwy., Alameda CA 94501 (415)748-6964.

DECISUS INTRODUCES INNOVATIVE PC DECISION SUPPORT SOFTWARE

Decisus, Inc., a Xerox company, has introduced Business Wits, a family of integrated decision-support software products that helps business leaders make key management and financial decisions quickly and accurately on a personal computer without programming. The first four products announced are oriented toward the financial marketplace, particularly financial analysts, bankers, investment counselors, accountants, and entrepreneurs. The General Business Library has 118 pre-programmed ready-to-use techniques employed in everyday decision-making. Additional techniques are available in three other Business Wits products: the Advanced Financial Applications Library, Banking and Investment Applications Library and Statistics and Sampling Application Library. (The General Business Library sells for $695, additional libraries are $195). Decisus, Inc., 9938 Via Pasar, Suite A, San Diego, CA 92126. 1-800-622-6543.



MACINTOSH PRODUCTS

PHOTOLINK LIGHT CONDUCTIVITY

Photolink is a flexible and convenient way to connect AppleTalk/LocalTalk workgroups in open and partitioned offices. Each cluster of up to four computers or peripherals is connected to a Photolink transceiver via infrared light aimed at the same area of a ceiling or wall. Any number of workstations and Photolinks can be connected, limited only by the same considerations that apply to cabled systems. Photolink may be connected to existing cable-based systems, wide-area net-

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386-25MHz w/Cache	900
386-33MHz w/Cache	1250

ADD-ON BOARD	
Mono/Printer Card	$30
Color/Printer Card	30
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Floppy Card 360K/720K	17
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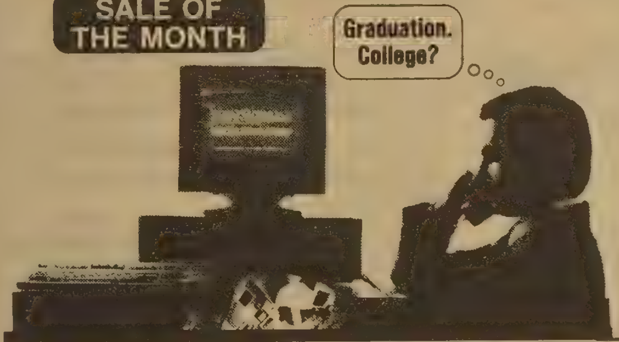

IMPRIMIS Hard Drive $499
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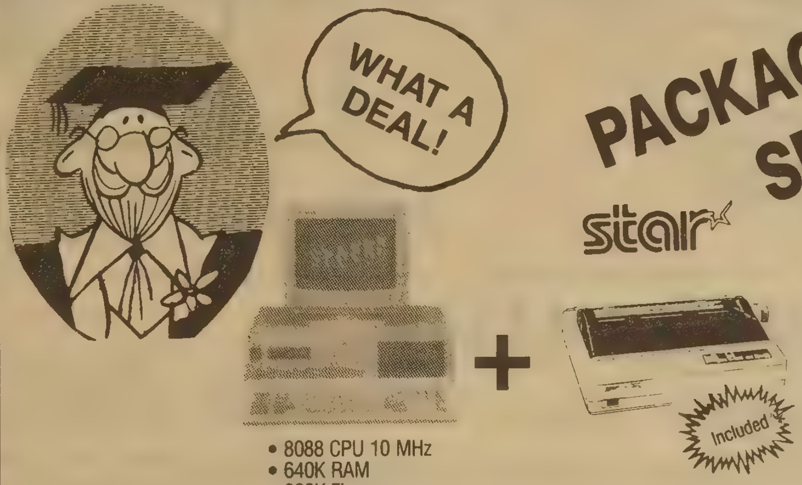

- 8088 CPU 10 MHz
- 640K RAM
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- Mono Monitor
- Printer Port
- Case & Power Supply

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- Printer Cable Included
- 1 Yr. Mfg. Warranty

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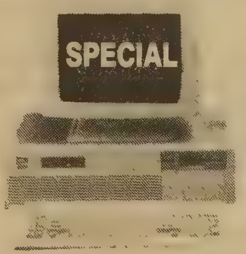
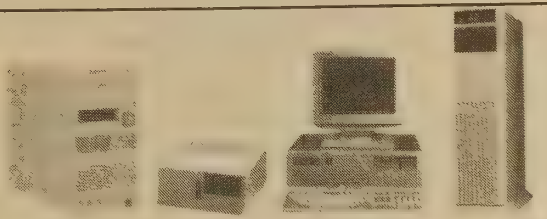
- HD/FDD Controller Card
- 101 Keyboard
- 1 Year Warranty

$479*
*monitor extra



386 SX
- 16 MHz
- 1 MB RAM
- I/O Card
- 1.2 MB Floppy & Controller Card

$689*
*monitor extra



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Many Cases to Choose From

386-20	386-25	386-33
• 20 MHz CPU • 1 MB Exp To 8 MB	• 25 MHz CPU • 1 MB Exp To 8 MB	• 33 MHz CPU • 1 MB Exp To 8 MB • 64K Cache
$999	$1199	$1999

*All Systems Come With 1.2 FDD, Controller, 101 Keyboard, Serial/Parallel, 1 Year Warranty

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25 MHz 386 File Server W/4 MB On Board	$2599 Arc
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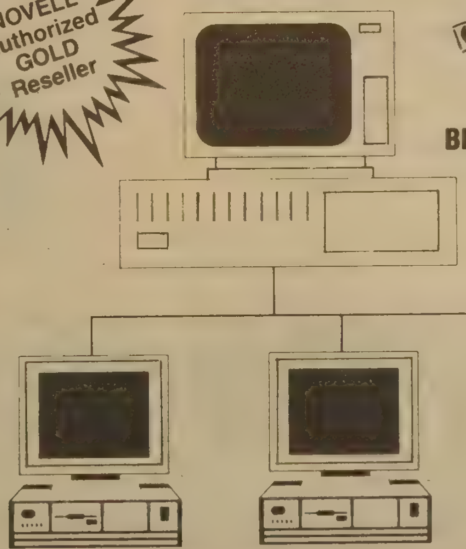


One Year Warranty Parts & Labor. 30 Days Money-Back for Incompatibility

THE 386

5th Anniversary Sale!!

ZTS-386 25 MHz

Landmark=34 MHz SI=29

Best Buy!

$1999

Options & Features that put the ZTS-386 ahead of the competition:

- Based on the enhanced chipset from Chips & Technology.
- All components are tested and certified for 25 MHz.
- 8 layer surface mount motherboard guarantees long life and improves reliability.
- Using our expertise in the PC industry, we wisely select the best and latest components available. We deliver a computing piece of art which is too superior to ignore.
- We proudly offer a 105MB IDE hard disk with our systems. It is the ultimate in fast and error free drive operations. It features a 990 Kb/S transfer rate, 35 sector/track, built in HD controller, zero bad sector! No low-level format is required.
- 230 Watt power supply is standard with 5000 Volt surge protector built in and overload circuitry protection, first in the industry, protects your investment.
- 1MB 80nS RAM. Expandable to 8MB on the motherboard.
- 1.2 MB floppy drive. Reads, writes and formats 1.2MB & 360k error free.
- Socket for 80387 math co-processor. Latest AMI BIOS. 8 slot std. bus.
- 101 enhanced style keyboard. 3 different manufacturers to select from.
- *Don't settle for less! Get the best for your $Dollar.*

ZTS-386's Options and Features:

ZTS-386's are based on an enhanced chipset by "Chips & Technology" which is currently dominating the PC industry.

- BIOS and video ROM shadowing speeds up the video & BIOS routines about 15%, tested with "PC Journal" program.
- Zero wait state and memory interleaving, separately set & controlled by AMI BIOS, speeds computing up to 30%, Norton test.
- Programmable BUS and DMA speed! You can easily set the BUS and the DMA speed from 8 to 12 MHz. That prevents conflict at high processing speed and guarantees safe future upgradability!

Also Applies to the ZTS 386 SX

TIPS FROM Z.T.S.

Many 386's run only Microsoft programs under latest Windows-386. ZTS-386 was found as one of the very few computers that proves total compatibility by running other programs under Windows as well (as in Compaq & IBM PS/2). For example using Dbase III under Windows-386!

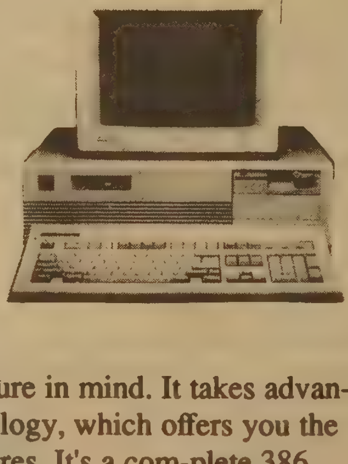
ZTS-386sx

$1299

Landmark = 20.6 MHz
16 MHz 386sx system

Uses "NEAT" chipset. See details on C&T

- 1 MB RAM, expands to 8MB on board.
- 1.2 MB floppy drive TEAC.
- 42 MB hard disk with 1:1 interleave. (IDE, by Western Digital)
- 16-bit controller for 2 fp & 2 HD
- Mono-graphics card and monitor.
- Socket for Intel Co-processor 80387sx.
- Tactile feel keyboard, 101 key-style KB



The ZTS-386sx system is designed with the future in mind. It takes advantage of the NEAT chipset from Chips & Technology, which offers you the full capability of the 386 with it's superior features. It's a com-plete 386 system with 16-bit design. It runs all of the Multi-tasking and Multi-user software.

Addition and upgrade:

Mono card & Monitor	$129
EGA card & Monitor	449
VGA card, 16-bit & VGA monitor 800x600	**539**
Sony monitor 1304	639
Nanao 16" 1025x768	999
44 MB IDE hard disk	439
72 MB Micropolis	589
105 MB IDE Toshiba	699
Tower case upgrade	109
Second Drive 3.5"	89
2 Serial & 2 Parallel ports	58

EXPERTS

Quality is not an option at Z-Tech It's our Standard

ZTS-486i

The Hit of 1990

Landmark speed 117MHz MIPS 11.9

We have been working for months evaluating many different 486 systems to select the best performance and most reliable computer system that can ever be built. We insisted on American made system board and will not give up any of the new features of today's technology.

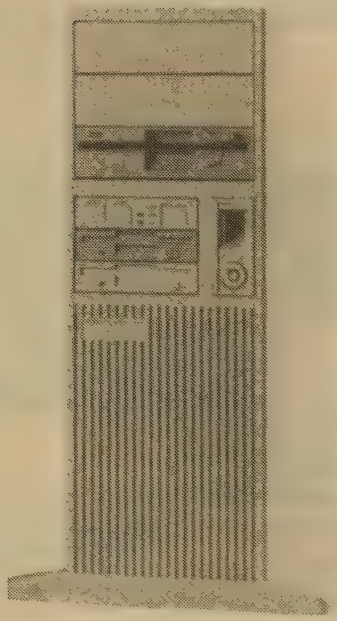
Why ZTS-486 outperforms many others

It is designed to be a true 486 computer and uses the full power of the 486 CPU. It uses a real 486 Bios by Phoenix or AMI. Many manufacturers rush to catch up with today's market, so they just imbedded the 486 CPU to an already existant 386 motherboard with 386 Bios.

- *Based on the new improved Intel CPU 80486-25MHz.*
- *Built-in cache and Math Co-processor. Socket for Weitek.*
- *Video RAM and BIOS Shadowing, Switchable On/Off.*
- *CPU Cache design can be enabled or disabled.*
- *Latest Phoenix or AMI 486 BIOS, supports all 386 software.*

- *205MB IDE HD by Conner. 1225 KB Sec, 3.5" Drive, 16MS, Built in controller with 32K cache. It is the ultimate in fast, error free drive operations. No low-level format is required.*
- *235 Watts custom designed power supply with 5000 volt surge protector built in. Noise Free. (Patent pending)*
- *Full size system board. Uses TTL discreet components.*

$4860



ZTS-486i Features!!!!

- *4MB RAM 70ns. Expandable to 16MB on the motherboard. It can take 1, 2, 3, 4, 8, 12 or 16 MB of SIMM, 32-Bit.*
- *8 Slots, all 16-Bit Slots. Can be used as 8-Bit also.*
- *1.2 MB Floppy Drive, 16-Bit controller, 2 Flp & 2 HD.*
- *Newest Super VGA Card, Paradise 1024, 512K RAM, 16-Bit.*
- *Omni style keyboard. 102 or 101 Keys. 2S/2P.*

Add For Upgrade

VGA Monitor 800x600, by 3 Lynx. (Best)	$399
VGA Monitor Nanao 9070, 16" 1024x768	1090
Memory Upgrade to 4MB Ram	379
Second Drive 3.5", 1.44MB	89
Tape Backup, Modem, Mouse, others	CALL

ZTS-386 33MHz

Intelligent cache controller design.
64K Cache, Static ram 25ns
Landmark Speed = 55MHz MIPS = 7.5

Basic System Configuration

* 386 33MHz, Zero wait state 64k cache.
* Latest BIOS by Phoenix or AMI.
* Built-in setup program on booting.
* Socket for 80387-33 or Weitek chip.
* 1 32-bit, 5 16-bit & 1 8-bit slots.
* 16-bit controller for 2 flps & 2 HD.
* 1 MB RAM, 80ns, up to 8 MB on M-board.
* 1.2 MB floppy drive. R/W/F 1.2MB & 360k.
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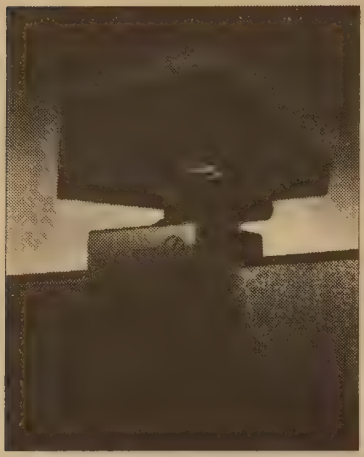


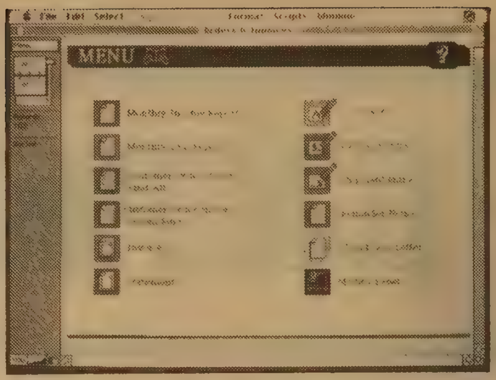
works, or directly to cable for through-the-wall connections. A built-in microprocessor and proprietary error correction assures dependable data transmission. ($1195) Photonics Corp., 200 East Hacienda Ave., Campbell, CA 95008. (408)370-3033.

MACMATRIX JOINS TOSHIBA PRINTER WITH MACINTOSH

Toshiba's new MacMatrix software program allows Macintosh computers to utilize Toshiba's 24-pin letter-quality, high-resolution printers. The software driver comes in a kit complete with disk, cable and manual. The driver supports four scalable outline fonts, Courier, Helvetica, Symbol and Times Roman, in point sizes 6 to 127. Bit map fonts and object-oriented graphics are supported, as well as graphics resolution from 180 x 180 through 360 x 360. The only systems requirements to use MacMatrix are 1Mb RAM, at least 800K free space on the Macintosh hard disk and one of the following Toshiba 24-pin printers: the P321SL ($699); the P321SLC ($899); and the P341SL ($949). Toshiba America Information Systems, Inc., Computer Systems Division, 9740 Irvine Blvd., Irvine, CA 92718. 1-800-334-3445.

FILEMAKER GOES PRO AT CLARIS

With more than one hundred new features, FileMaker Pro adds greater solution for flexible, graphics-rich formatting and report generation, and includes a strong set of workgroup and multiuser features to significantly increase the performance of FileMaker II. Using new features from MacDraw II and Claris CAD, database reports and forms can be designed with greater precision. For quick, precise placement of text and data fields within forms and other layouts, FileMaker Pro provides customizable gridlines and auto-alignment. The user can also create and place fields by entering their dimensions and exact location on the layout using the "Size" dialogue. The most innovative new features with FileMaker Pro are Buttons and enhancements to Scripts, to allow any of the program's or series of commands to be automated.



The suggested retail price of FileMaker Pro is $299, the same as FileMaker II. Registered owners of FileMaker II and FileMaker 4 can upgrade to FileMaker Pro for $99; registered owners of earlier versions of FileMaker can upgrade for $119. Claris Corp., 5201 Patrick Henry Dr., Box 58168, Santa Clara, CA 95052. (415)987-7000.

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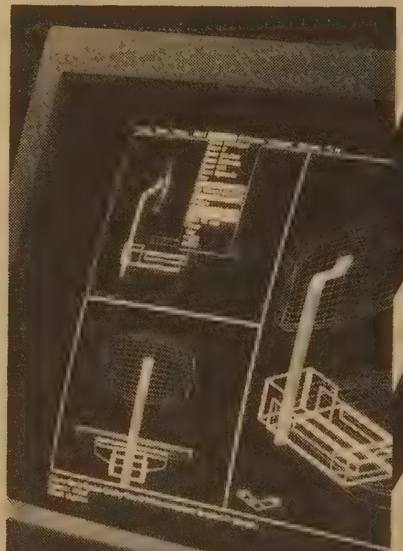

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Complete System

386-25MHz ***64K CACHE***
W/ VGA + 40MB HD

- Intel 80386-25 Microprocessor
- 0 Wait State - 64K Cache Memory
- Real Time Clock/Calendar & Battery Back-Up
- **1MB RAM on Board, Expandable to 32MB**
- **40MB HARD DISK (28ms)**
- **VGA Color Monitor 14" & .29 Dot Pitch**
- 1:1 Interleave HD/FD Controller
- 1.2MB Floppy Drive (TEAC)
- 2 Serial, 1 Parallel & Game Port
- VGA Card 16 Bits (800x600)
- Enhanced Keyboard 101 Keys
- Deluxe AT Case & 200W Power Supply
- One Year Warranty on Parts & labor

Landmark = 40MHz

Made In USA **$2,350.**

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USA

MADE

Complete System

386-33MHz ***64K CACHE***
W/ VGA + 40MB HD

- Intel 80386-33 Microprocessor
- 0 Wait State - 64K Cache Memory
- Real Time Clock/Calendar & Battery Back-Up
- **1MB RAM on Board, Expandable to 32MB**
- **40MB HARD DISK (28ms)**
- **VGA Color Monitor 14" & .29 Dot Pitch**
- 1:1 Interleave HD/FD Controller
- 1.2MB Floppy Drive (TEAC)
- 2 Serial, 1 Parallel & Game Port
- VGA Card 16 Bits (800x600)
- Enhanced Keyboard 101 Keys
- Deluxe AT Case & 200W Power Supply
- One Year Warranty on Parts & labor

Landmark = 55MHz

Made In USA **$2,650.**

...and Much More At The Lowest Prices

System 386-25MHz + VGA + Harddisk : $1,695.

System 386-20MHz + VGA + Harddisk : $1,545.

System 386SX-16MHz + VGA + Harddisk : $1,285.

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- Intel 80386-25/20/16 Microprocessor
- 0 Wait State, Real Time Clock/Calendar
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- 1:1 Interleave Hard Disk & Floppy Controller
- 1.2MB Floppy Drive or 1.44MB Floppy Drive
- 2 serials, 1 Parallel, Game Port
- 101 Enhanced Keyboard
- AT Deluxe Case
- 200 Watts Power Supply

20 MB Hard Disk * VGA Color Monitor 14" & .29 Dot Pitch * VGA Card (800x600)

HD 20MB
Seagate ST-225
$179.

PRINTER PANASONIC
KXP-1180
9 Pins - 192 CPS - 4 NLQ fonts
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VGA Card
1024x760 w/256 Colors
1MB RAM on Board
Made in USA
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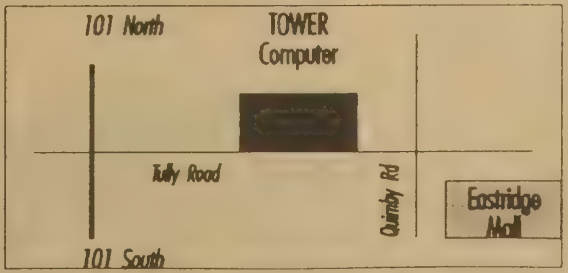
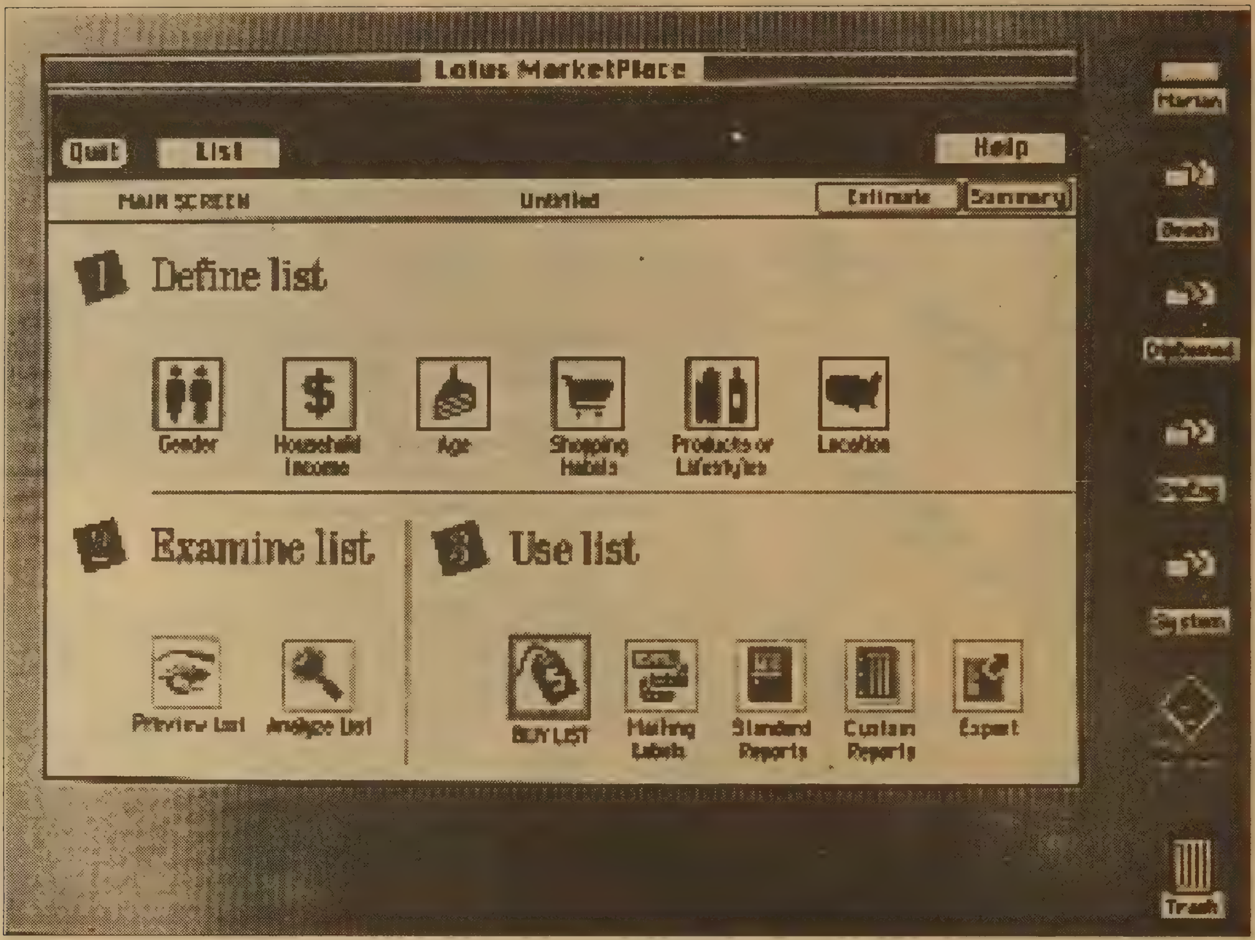




Typical uses of Lotus MarketPlace include analyzing the potential of a new product, planning expansion into a new geographic area, conducting a sample survey, and defining sales territories.

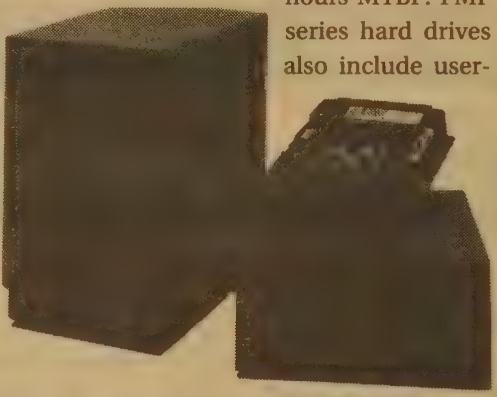
LOTUS BRINGS THE MARKETPLACE TO THE MAC

Lotus Development Corp. has introduced a new information product for Macintosh computers that allows anyone to perform sophisticated sales prospecting and market analysis. The Lotus MarketPlace product line includes two editions—Business and Household. Lotus MarketPlace: Business includes information on 7.5 million US businesses. The Household version consists of demographic and lifestyle data on 80 million households and 120 million consumers. Typical uses of the product include analyzing the potential of a new product, planning expansion into a new geographic area, conducting a sample survey, and defining sales territories.

Users have unlimited flexibility to view, edit and customize data before buying lists. Once satisfied with a list's characteristics, the user "buys" the list by clicking a button icon on the computer screen. Lotus MarketPlace data is updated quarterly. ($695 includes software and the purchase of the first five thousand names of choice on the disc.) Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142. (617)577-8500.

FWB, INC. OFFERS MINICOMPUTER TECHNOLOGY FOR THE MACINTOSH

The Sledgehammer FMF hard drive brings minicomputer disk technology to the Macintosh desktop. Based upon the Hammer Fast Media Format (FMF) hard drives, this storage platform features fast 7 to 15 millisecond seek times and data transfer rates up to 3Mb per second. The unit is rated at 50 thousand hours MTBF. FMF series hard drives also include user-configurable high-speed RAM caches to ensure performance in demanding applications. The Sledgehammer FMF is well suited for file serving under AppleShare and Novell NetWare.



The Sledgehammer FMF provides a compact tower sub-system providing with 9Gb of on-line storage. Optional tape and DAT backup as well as an erasable optical cartridge drive can be fitted for added versatility. Optional proprietary hardware and software is available allowing non-stop operation through fault tolerant disk mirroring and disk duplexing. ($8795) FWB, Inc., 2040 Polk St., Suite 215, San Francisco, CA 94109.

QUICKIMAGE VIDEO CARD GRABS FOR THE MACINTOSH II

Mass Microsystems has released a new QuickImage 24 frame grabber card which instantly captures an NTSC (or PAL) video frame in 1/30th (or 1/25th) of a second for use in desktop publishing, technical documentation, creating published materials from videotapes or for creating special artwork effects. QuickImage 24 is compatible with all Macintosh II family computers.

QuickImage 24 accepts input from any composite or S-Video source such as video cameras, video cassette recorders, or videodisc players. It features a a preview mode which allows users to view the incoming video signal in a preview window on any monitor. The NuBus card supports 24-bit color images or 8-bit gray scale images that are converted to PICT2 format. ($995) Mass Microsystems, Inc., 550 Del Rey Ave., Sunnyvale, CA 94086. (408)522-1200.

CONNECTIVITY PRODUCTS

PRINT SHARING MADE EASY

Print-Share, from TANSTAAFL Manufacturing, Inc., provides an economical print sharing solution for a cluster of computers and printers. It allows three computers to share two printers or four computers to share one printer. Featuring four serial and one parallel ports, all ports can operate simultaneously. Installation is easy with the use of RJ-12 (telephone style) serial cabling. Print-Share comes with two 10' and two 25' cables. It can operate over a network of up to 1000 feet. ($399) TANSTAAFL Manufacturing, Inc., 1800 Wyatt Dr., Suite 6, Santa Clara, CA 95054. (408)748-9330 or 1-800-776-5676.

ETHERNET TWISTED PAIR ADAPTERS FROM EVEREX

"The low cost of unshielded twisted pair cabling is going to make twisted pair the most popular in-office connection," said Paul Wiele of Everex. To meet this demand, Everex has announced the release of 8-bit and 16-bit models of the SpeedLink/TP, and Ethernet adapter with standard Ethernet and twisted

continued

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	2MB KIT	30F5360	230.00
PS/2 50Z & 55-SX	IBM SIMM (Above 55-sx only)	6450603	140.00
	2MB SIMM (Above Installed on System Board)	6450604	305.00
PS/2 70-E61 & 70-121	1MB SIMM	6450603	140.00
	2MB SIMM	6450604	300.00
PS/2 70-A21	2MB SIMM (Above Installed on System Board)	6450608	315.00
	IBM SIMM	6450603	140.00
	2MB SIMM (Above Installed on Expansion Board #6450605)	6450604	305.00
PS/2 80-041	1BM MODULE	6450375	179.00
PS/2 80-111 & 80-311	2MB MODULE (Above Installed on System Board)	6450379	475.00
	IBM SIMM	6450603	140.00
	2MB SIMM (Above Installed on Expansion Board #6450605)	6450604	305.00

COMPAQ Model	MEMORY Added	COMPAQ Part #	AMT Price
DESKPRO 386/33	2MB MODULE	115144-001	0330.00
DESKPRO 386/20.25	1MB MODULE	113131-001	0185.00
	4MB MODULE	113132-001	0499.00
DESKPRO 386/20e	1MB BOARD	113644-001	0285.00
	4MB BOARD	113645-001	0635.00
	1MB MODULE	113131-001	0185.00
	4MB MODULE	113132-001	0499.00
DESKPRO 386s	1MB BOARD	113633-001	0265.00
	4MB BOARD	113634-001	0635.00
	1MB MODULE	113646-001	0185.00
	4MB MODULE	112534-001	0499.00
PORTABLE III	512K KIT	107331-001	0055.00
	2MB KIT	107332-001	0175.00
DESKPRO 386/16	4MB BOARD	108070-001	0795.00
	8MB BOARD	108072-001	1325.00
PORTABLE 386	1MB KIT	107651-001	0285.00
	4MB BOARD	107653-001	1050.00
SLT/286	1MB MODULE	110235-001	0325.00

APPLE Model	MEMORY Added	APPLE Part#	AMT Price
MAC II IIx IIcx & SE/30	IBM KIT	MO218	82.00
	4MB KIT	MO2707	305.00
	16MB KIT		2799.00
MAC IIci	4MB KIT	MO292LL-A	0315.00
	16MB KIT		2899.00
MAC SE &PLUS	1MB KIT	MO218	0082.00
	2MB KIT	MO219	0155.00
	4MB KIT	MO2707	0315.00

HP LASER Model	MEMORY Added	HP Part#	AMT Price
LASER JET II	1MB MODULE	33443B	220.00
	2MB MODULE	33444B	399.00
	4MB MODULE	33445B	499.00

AST Model	MEMORY Added	AST Part#	AMT Price
BRAVO/286	512K KIT	500510-010	070.00
	2MB KIT	500510-002	185.00
	4MB KIT	500510-008	360.00
PREMIUM 286 ADVANCED	512K KIT	500510-001	070.00
	1MB KIT	500510-007	130.00
	2MB KIT	500510-002	190.00
	4MB KIT	500510-008	360.00
FASTBOARD 386	1MB KIT	500510-007	140.00
	4MB KIT	500510-008	360.00
PREMIUM WKST/286	512K KIT	500510-010	070.00
	2MB KIT	500510-002	185.00
PREMIUM WKST 386SX	512K KIT	500510-010	070.00
	1MB KIT	500510-007	135.00
	2MB KIT	500510-002	180.00
	4MB KIT	500510-008	360.00
PREMIUM 386/16	1MB KIT	500510-007	130.00
	4MB KIT	500510-008	360.00
PREMIUM 386	1MB KIT	500510-003	165.00
	4MB KIT	500510-004	379.00
PREMIUM 386c	1MB KIT	500510-007	130.00
	4MB KIT	500510-008	360.00
PREMIUM 386/25sx	1MB SIMM	500718-001	145.00
PREMIUM 386/33	1MB SIMM	500718-002	155.00

ZENITH Model	MEMORY Added	AMT Price
386/25	1MB KIT	139.00
	2MB KIT	309.00
386/33	1MB KIT	149.00
	2MB KIT	319.00

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80287-10	199
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80387-25	440
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256KX9 120NS	23.00
256KX9 100NS	31.00
256KX9 80NS	37.00
256KX9 70NS	42.00
256KX9 60NS	44.00
256KX9 80NS S/C	36.00
256KX9 70NS S/C	40.00
256KX9 60NS S/C	44.00
1MX8 120NS	70.00
1MX8 100NS	75.00
1MX8 80NS	79.00
1MX8 70NS	80.00
1MX9 120NS	65.00
1MX9 100NS	70.00
1MX9 80NS	72.00
1MX9 70NS	75.00
1MX9 60NS	99.00
1MX9 100NS S/C	100.00
1MX9 80NS S/C	102.00
1MX9 70NS S/C	80.00
1MX9 60NS S/C	85.00
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4MX9 80NS	595.00

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25MHZ	179.00
33MHZ	199.00
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1 MGX1-100 NS	7.50
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1 MGX1-70 NS	7.99
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256X1-70 NS	3.99
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80386 DX-25	450
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80386SX-16	250
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V-20-10	10
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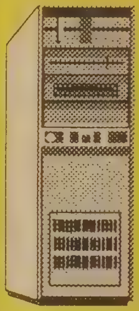

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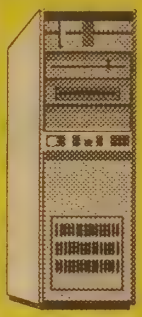

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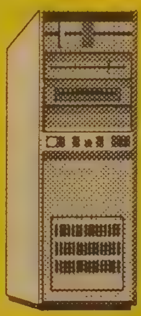
MONO	1690	2150	2350	2450
VGA	2090	2450	2650	2750
SVGA	2190	2550	2750	2850

MICRONICS 386-33 ASIC or OMNITEL 386-33C



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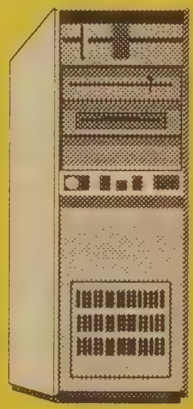
MONO	1990	2350	2550	2650
VGA	2290	2650	2850	2950
SVGA	2390	2650	2950	3050



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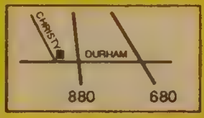

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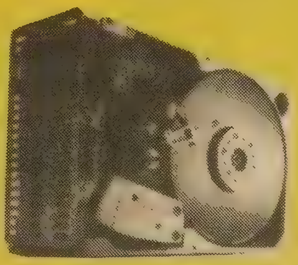

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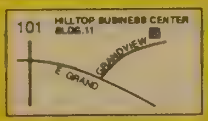

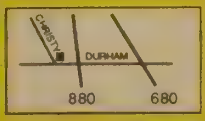

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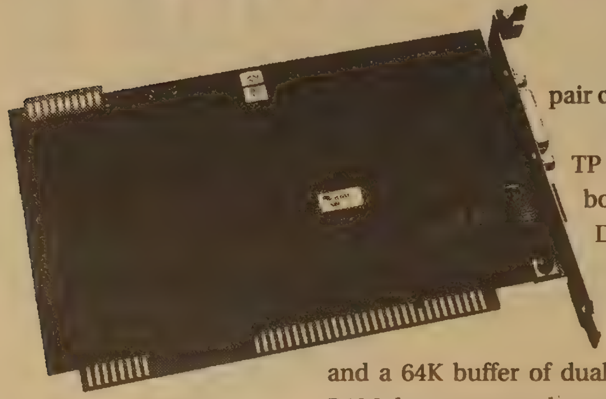

pair connectors.

The SpeedLink/TP features two on-board connectors, a DB-15 Ethernet connector and a RJ-45 twisted pair connector, and a 64K buffer of dual-ported, dynamic RAM that supports data transfer rates up to 10Mbps. It operates with a variety of computer clock speeds and network applications, including NetWare, PC LAN, CBIS Network-OS and LANtastic. ($449) Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. (415)498-1111.

UNTANGLING VOICE/DATA COMMUNICATION

Adtech Micro Systems, Inc., Fremont-based manufacturer of communication products, has announced a new voice/data detection switch, Teleshare. This device determines whether an incoming call is a fax, modem or voice communication and routes it accordingly. Teleshare is an auto-routing device that allows the user to share a single phone line with any two other devices, such as a fax, answering machine or modem.

Teleshare complements other communication products from Adtech Micro Systems. A toll-free 800 number provides sales and technical support. Teleshare is backed by a two-year warranty. ($195) Adtech Micro Systems, Inc., 43120 Christy St., Fremont, CA 94538. (415)659-0756.

NETWORKING WITHOUT WIRES

Using advanced radio technology for PC networking applications, O'Neill Communication has announced the availability of its second generation LAWN—local area wireless network. Featuring increased network speed, an enhanced user interface and increased compatibility with third-party software, the LAWN provides peripheral sharing, email and file transfer without requiring wiring. LAWN signals transmit through walls, floors and other office obstructions. This product is seen as offering an economical PC networking alternative for small businesses and divisions within larger organizations. ($298) O'Neill Communication, Inc., 100 Thanet Circle, Princeton, NJ 08540. 1-800-624-5296.

486 SYSTEMS

JUST GOOD, NOT EXPENSIVE

Amax Engineering Corp. has introduced the Amax 486, priced below many of its competitors. This new machine comes with 4Mb RAM and supports UNIX, XENIX, Novell Networking, AutoCAD, Windows, DESQView and IBM OS/2. Although the 486 runs at 25MHz, Amax has designed the board to be easily upgradeable to 33MHz when the

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8-BIT, BUS, VLSI CHIP, COAX + TWISTED PAIR	$63
16 BIT COAX STAR/BUS	$85/90
ACTIVE HUB, 8 PORT, COAX, DIAGNOSTIC LED'S	$145
ACTIVE HUB, 8 PORT, TWISTED PAIR, DIAGNOSTIC LED'S	$190
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MOTHERBOARD, 386-25 32K CACHE W/O CPU	$390
MOTHERBOARD, 386-33 W/O CPU	$530
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MODEL	MEMORY	PART NUMBER	LIST PRICE	ATICO PRICE
		IBM PS/2		
25	128K KIT	78X8955	$ 50	[illegible]
30/286, 50,60	512K KIT 2MB KIT	30F5348 30F5360	$ 200 $ 795	[illegible] [illegible]
55SX	1MB MODULE	6450603	$ 450	[illegible]
50Z,55SX, 65SX	2MB MODULE	6450604	$ 950	[illegible]
55SX,65SX	4MB MODULE	34F2933	$2,195	[illegible]
50, 50Z, 55SX, 65SX	2-8MB EXP BRD w/2MB 2-8MB EXP BRD w/4MB 2-8MB EXP BRD w/6MB 2-8MB EXP BRD w/8MB	1497259 1497259+ 1497259+ 1497259+	$1,350 $2,040 $2,830 $3,620	[illegible] [illegible] [illegible] $1,483
70-E61, 70-061, 70-121	1MB MODULE 2MB MODULE	6450603 6450604	$ 450 $ 950 *6450605 Required	$ 129 [illegible]
70-A21,A61, B21,B61	1MB MODULE 2MB MODULE 2MB MODULE	6450603 6450604 6450608	$ 450 $ 950 $ 950 *6450605 Required	$ 121 $ 285 [illegible]
70-All Models 80-All Models	2-8MB EXP BRD w/2MB 2-8MB EXP BRD w/4MB 2-8MB EXP BRD w/6MB 2-8MB EXP BRD w/8MB	6450605 6450605+ 6450605+ 6450605+	$1,295 $2,890 $4,185 $5,480	[illegible] $ 888 $1,147 [illegible]
80-041	1MB BOARD	6450375	$ 675	[illegible]
80-041,071	2MB MODULE	6450372	$1,295	[illegible]
80-A21,A31	4MB BOARD	6451060	$1,895	$ 894
80-All Models	1MB MODULE 2MB MODULE 2MB BOARD 4MB MODULE	6450603 6450604 6450379 34F2933	$ 450 $ 950 $ 950 $2,195 *6450605 Required	$ 129 $ 285 $ 429 $ 722
PORTABLE P70	2MB MODULE	6450604	$ 950	$ 285
4019/E LASER PRINTER	1MB MODULE 2MB MODULE 3.5MB MODULE	1039136 1039137 1038675	$ 450 $ 850 $1,495	$ 210 $ 347 $ 516
		COMPAQ		
DESKPRO 286E	1MB MODULE 4MB MODULE	113131-001 113132-001	$ 450 $1,950	$ 164 $ 485
DESKPRO 386/16	1MB KIT 4MB KIT 1-2MB EXP BRD w/1MB 4-8MB EXP BRD w/4MB	108071-001 108072-001 108069-001 108070-001	$ 635 $2,550 $ 650 $2,550	[illegible] [illegible] [illegible] CALL
DESKPRO 386S	1MB MODULE 1MB BOARD 4MB MODULE 4MB BOARD	113646-001 113633-001 112534-001 113634-001	$ 450 $ 650 $1,950 $2,395	$ 164 $ 238 $ 475 $ 595
DESKPRO 386/20,25	1MB MODULE 4MB MODULE	113131-001 113132-001	$ 450 $1,950	$ 164 $ 465
DESKPRO 386/20E,25E	1MB MODULE 1MB BOARD 4MB MODULE 4MB BOARD	113131-001 113644-001 113132-001 113645-001	$ 450 $ 650 $1,950 $2,395	$ 164 $ 258 $ 465 $ 595
DESKPRO 386/33	2MB MODULE	115144-001	$ 950	$ 299
DESKPRO 486/25, SYSTEM PRO	2MB MODULE 8MB MODULE	115144-001 116561-001	$ 950 $5,195	$ 299 [illegible]
PORTABLE 386	1MB KIT 4MB BOARD 4MB EXT BOARD	107651-001 107653-001 107654-001	$ 650 $2,395 $2,395	$ 259 $ 985 $ 985
PORTABLE III	512K KIT 2MB KIT	107331-001 107332-001	$ 269 $1,100	$ 49 $ 159
PORTABLE LTE	512K BOARD 1MB BOARD 2MB BOARD	117077-001 117081-001 117081-002	$ 295 $ 650 $1,250	$ 197 $ 248 $ 389
SLT/286	1MB BOARD	110235-001	$ 650	$ 295
		APPLE MAC		
PLUS,SE, SE30,II	1MB KIT 2MB KIT 4MB KIT	MO218 MO219 MO2707	$ 250 $ 450	$ 76 $ 140 $ 288
IIci	4MB KIT 4MB MODULE 16MB KIT	MO292LL-A	$ 950 $6,995	$ 296 $ 546 [illegible]
IIcx	1MB KIT 2MB KIT 4MB KIT 4MB MODULE	MO218 MO219 MO2707	$ 250 $ 450	$ 76 $ 140 $ 288 $ 546
IIfx	4MB KIT 16MB KIT	MO376LL-A	$ 950 $6,995	$ 548 $2,895
PORTABLE	1MB KIT 4MB MODULE	MO248	$ 630	$ 434 $2,999
LASERWRITER II/NTX	1MB EXP KIT 4MB EXP KIT	M6005 M6006	$ 450 $ 950	$ 288 $ 536
		AST RESEARCH		
BRAVO 286	128K KIT 512K KIT 2MB KIT	500510-011 500510-010 500510-002	$ 50 $ 135 $ 345	$ 42 $ 65 [illegible]
BRAVO 386SX	512K KIT 2MB KIT	500510-010 500510-002	$ 135 $ 345	[illegible] [illegible]
PREMIUM 286 ADVANCED	1MB KIT 2MB KIT	500510-007 500510-002	$ 260 $ 345	$ 125 $ 174
PREMIUM WS286/WS386SX	512K KIT 2MB KIT	500510-010 500510-002	$ 135 $ 345	$ 65 [illegible]
PREMIUM 386SX/16, 386/25	1MB MODULE 1-16MB EXP BOARD	500718-001 500722-004	$ 195	[illegible] [illegible]
PREMIUM 386/33	1MB MODULE 1-16MB EXP BOARD	500718-002 500722-004	$ 195	[illegible] [illegible]

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MODEL	MEMORY	PART NUMBER	LIST PRICE	ATICO PRICE
		AST RESEARCH *Continued*		
PREMIUM 386/16,386C	1MB KIT 4MB KIT	500510-007 500510-008	$ 260 $ 675	$ 125 $ 335
PREMIUM 486	2MB MODULE	500718-004	$ 850	$ 323
PREMIUM 486/25,25E, 25T,25TE, 33	1MB MODULE 1-16MB EXP BOARD	500718-002 500722-004	$ 195	$ 139 $ 562
		AT&T (WGS SYSTEM)		
6286	2MB UPGRADE	37727	$1,195	[illegible]
6386,6386E	1MB UPGRADE 4MB UPGRADE	37714 37716	$ 750 $2,795	[illegible] $1,213
6386/SX, 6386/25&33	2MB UPGRADE	37336	$1,195	$ 615
		DEC		
DECStation 3100	4MB KIT	MS01-AA	$2,500	$ 899
VAXStation 3100	8MB BOARD 12MB ADD-ON 12MB EXP BRD 16MB BOARD	MS42-KA MS42-BA MS42-CA	$3,995 $5,995 $5,995 $7,950	$1,567 $2,197 $2,223 $2,985
VT100 TERM. VT100 BOARD	1MB BOARD 1MB MODULE	VX10X-MA VX10X-MD	$ 395 $ 395	[illegible] [illegible]
		EPSON		
EQUITY IIc, 386/20	1MB KIT 1MB KIT 2MB KIT	A808091 A808231 A808101	$ 450 $ 450 $ 995	$ 182 $ 222 $ 321
386SX	1MB KIT 2MB KIT	A808231 A808101	$ 450 $ 995	$ 222 $ 321
		HP VECTRA SYSTEM		
VECTRA QS/16S	1MB KIT 2MB KIT 4MB KIT	D1540A D1354A D1542A	$ 595 $1,195 $2,495	[illegible] [illegible] [illegible]
VECTRA ES/12PC	2MB KIT	D1354A	$1,195	[illegible]

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		HP VECTRA		
VECTRA QS/20S, RS/25PC	1MB KIT 4MB KIT	D1640A D1642A	$ 595 $2,495	[illegible] [illegible]
VECTRA 486PC	2MB KIT 8MB KIT 16MB KIT	Two D2150A Two D2151A	$ 595 $2,495	[illegible] [illegible] [illegible]
		[illegible]		
LASER JET II,IID	0MB BOARD 1MB BOARD 2MB BOARD 4MB BOARD	 H33443B H33444B H33445B	 $ 485 $ 775 $1,450	[illegible] [illegible] [illegible] [illegible]
LASER JET IIP,III	0MB BOARD 1MB BOARD 2MB BOARD 3MB BOARD 4MB BOARD	 H33474B H33475B H33476B H33477B	 $ 485 $ 890	[illegible] [illegible] [illegible] [illegible] [illegible]
		[illegible]		
POWER MATE 386SX	4-8MB EXP BOARD		$2,295	[illegible]
		[illegible]		
PERSONAL 4D/20/25	4MB KIT 16MB KIT	H4C04A HU9C16B	$1,650 $7,900	[illegible] [illegible]
PROFESSIONAL 4D/40/50/70/80 CS/12 TURBO12/16	4MB KIT 16MB KIT	H4C04B HU9C16B	$1,650 $7,900	[illegible] [illegible]
POWER SERIES 4D/120/220/240/280	8MB KIT	H4C08X	$3,900	[illegible]
		SUN		
3/60,3/80,4/60, SPARC 1	4MB OPTION	X104C,-G,-H	$1,895	[illegible]
4/110	16MB OPTION	X116D	$7,700	[illegible]
SPARC 4/60, 4/330,4/370	16MB OPTION	X116H	$5,600	[illegible]
4/330,4/370	8MB OPTION	X108E	$7,700	[illegible]
		[illegible]		
T1000SE	1MB CARD 2MB CARD	PC14-PA8311U PC14-PA8312U	 $1,199	[illegible] [illegible]
T1600	2MB BOARD	PC8-PA8302U	$1,190	[illegible]
T3100E	512K KIT 2MB KIT	PC9-PA8340U PC9-PA8341U	$ 350 $1,190	[illegible] [illegible]
T3100SX	2MB BOARD 4MB BOARD	PC15-PA8308U	$ 950	[illegible] [illegible]
T3200	3MB BOARD	PC6-PA7137U	$1,590	[illegible]
T3200SX	2MB KIT 4MB KIT	PC12-PA8307U	$ 990	[illegible] [illegible]
T5100	2MB BOARD	PC7-PA8301U	$1,190	[illegible]
T5200/T8500	2MB KIT	PC10-PA8304U	$ 950	[illegible]
		[illegible]		
Z386/SX,20, 25,33	1MB MODULE 2MB MODULE 4MB MODULE	ZA3600/ZA3800ME ZA3600/ZA3800MG ZA3600/ZA3800MK	$ 675 $2,195	[illegible] [illegible] [illegible]
SUPERSPORT 286	1MB KIT 1MB BOARD 1MB EXP CARD 4MB KIT	ZA180-66 7PC-16AC ZA180-67		[illegible] [illegible] [illegible] [illegible]
SUPERSPORT 386SX	2MB BOARD	ZA180-86		[illegible]
TURBOSPORT 386	1MB KIT	ZA3034-ME		[illegible]

[illegible]	
3C87-16	$ 298
3C87-20	$ 388
3C87-25	$ 431
3C87-33	$ 526

[illegible]	
8087-2	[illegible]
8087-5	[illegible]
80287-6	[illegible]
80287-8	[illegible]
80287-10	[illegible]
80C287-12	[illegible]
80387SX-16	[illegible]
80387-16	[illegible]
80387-20	[illegible]
80387-25	[illegible]
80387-33	[illegible]

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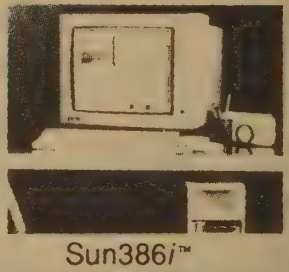
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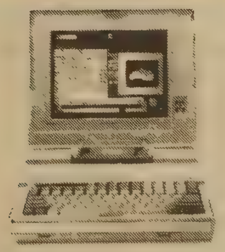

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new processor becomes available. It has a Landmark speed of 114.1MHz and a Norton SI speed of 41.0. Amax has an aggressive marketing plan and offers a one-year warranty for both parts and labor. ($4995) Amax Engineering Corp., 47315 Mission Falls Ct., Fremont, CA 94539. (415)651-8886, Fax (415)651-3720.

ALR OFFERS EISA-BASED I486

Advanced Logic Research, Inc. has begun shipping its new BusinessVEISA 486/25, a powerful new 25MHz i486 EISA-based desktop computer using ALR's VEISA Scalable Design Architecture. The BusinessVEISA is aimed at experienced business users seeking i486-based processing power along with a flexible CPU upgrade path

Integrated features on the 486/25 are 2Mb of memory, 1.44Mb 3.5" floppy drive, embedded AT type hard drive controller, EISA bus and ALR VEISA Scalable Architecture with a 25MHz i486 CPU. The small compact desktop design fits easily on a desk, leaving plenty of room for work space. The four models available range from Model 1 with diskette drive, priced at $4,999, through Model 110 with a 106MB disk drive, a SuperVGA card and 14" FlexVIEW 2X monitor for $7199. Advanced Logic Research, Inc., 9401 Jeronimo, Irvine, CA 92718. (714)581-6770, Fax (714)581-9240.

MOBIUS PERSONAL 486 WORKSTATION

Mobius Computer's new PWS/425C, a 486-based Personal UNIX WorkStation with high-resolution graphics, runs twice as fast as the SPARCStation I and significantly faster than the DECStation 3100. The PWS/425C uses a proprietary burst mode when accessing system memory to more than double the CPU to memory access. The built-in 80387 maximizes floating point calculations. It also includes six ISA bus slots and four half height drive bays, as well as TCP/IP and a built-in Ethernet interface with ThinLAN and ThickLAN connections.

The PWS/425C is bundled with ISC UNIX System V version 3.2 and the X Window system version 11.3. All software is pre-installed and configured to your specifications. Mobius offers an unconditional thirty-day money-back guarantee. Mobius also guarantees every piece of equipment to be free of defects in materials and workmanship for fifteen months. ($9995) Mobius Computer Corp., 1717 Embarcadero Rd., Palo Alto, CA 94303. (415)493-7777.

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In addition to running applications such as financial modeling, computer-aided design and process simulation, the new Everex STEP 486/33 also works as a powerful file or database server. The Everex STEP 486/33 achieves its high level of performance by also including an external caching system bases on Advanced Memory Management Architecture (AMMA). With an external cache of 128K, this dual level caching system achieves a cache hit rate of up to 99 percent. It also includes Programmable Configuration Select (PCS), eliminating the needs for users to change jumpers and DIP switches when modifying standard configurations. The Everex STEP 486/33 will be available in July with a list price of $10,499. A 25MHz version of the STEP 486, for $8999, will also be available. Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. (415)498-1111.

RAIN OR SHINE, ACMA DELIVERS

The California-based mail order computer manufacturer Acma Computers, Inc. recently announced two new 486 computer systems. Their high-end version comes with 128K cache for $5,295. The 64K version with similar performance, but with fewer features, lists for $4,995.

Standard on both Acma 25MHz 486 systems are 4Mb of RAM, built-in math coprocessor, 150Mb EDSI hard disk drive, 1.2Mb and 1.44Mb floppy drives, built-in setup diagnostics, and enhanced 101-key keyboard. Acma Computers, Inc., 117 Fourier Ave., Fremont, CA 94539. 1-800-456-1818. ■

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- Intel 386-SX CPU
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- 101 Keyboard
- Choice: Regular Baby Case or Small Vertical Case

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Relisys Multisync	420
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Everex Viewpoint	165
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XT Multi I/O	39
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Panasonic KX-1124	285
Panasonic KX-1524	519
Panasonic KX-1624	439
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Star NX-1000 Color	215
Star NX-15	320
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Panasonic Laser Printer	CALL
Fujitsu DL 3400	455

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Everex 2400B (ext)	165
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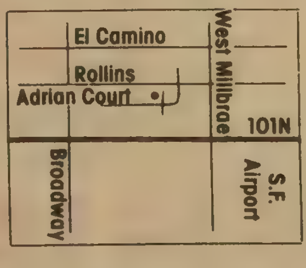

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- Ideal for Desktop Publishing, CAD and Network Service

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- 16-bit VGA card w/256K RAM
- 14" Hi-Res color VGA Monitor
- 101 Keytronic Enhanced Keyboard
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- 16-bit VGA card w/256K RAM
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- Full size case w/230W power supply
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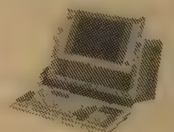

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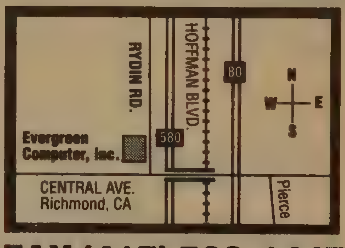

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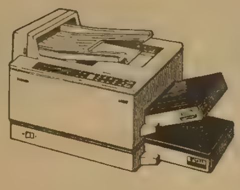

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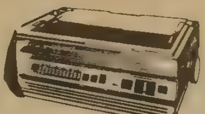
Panasonic Office Automation OA



KXP-1624

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Wide Carriage, 24-Pin Dot Matrix Printer with many high end printer features

- EZ set operator panel controls more than 20 functions
- 360 x 360 dpi resolution
- Multiple font capabilities—2 draft and 5 letter quality

KXP-1524

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- Interfaces (Standard) 8 Bit Parallel and RS-232-C (DTR, X-ON/X-OFF)

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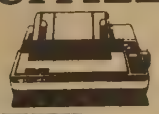

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- 40 cps NLR

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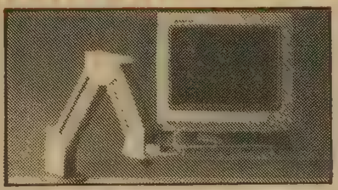

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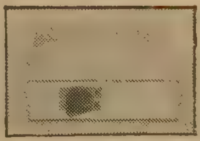

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MS401 4 computers share one serial peripheral	114
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AUTO DATA SWITCH WITH BUFFER

ASB422-256 ..... **$249**

- 4 computers share 2 printers • Auto scan or key switch with 256K buffer • Transfer rates 1K abyte/sec/port • LED display, which shows quantity of copies, can be easily set by + or - button

ASB624-256 ..... **369**

- 6 computers share 4 printers • Port selection through soft code or at the press of a key switch • 256K memory

ASB24-512 ..... **419**

- Same as ASB624-256 except with 512K memory installed

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386-25MHz (No CPU) (No D RAM)	299/365
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286-12MHz w/CPU (No D RAM)	139
8088-10MHz (No D RAM)	65

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Multi I/O (AT/XT)	$30/35
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EGA 600x800 card	89
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ATI 16 Bit VGA 1024 x 768 256K (wonder) oemi	185
ATI 16 Bit VGA 1024 x 768 256K (wonder) w/mouse	215
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DCT RLL CONT FD/HD	125
AT HD/FD CONT 1:1	79
Serial/printer/game Card	16/16/16
VGA 16-bit 600 x 800	95

Reviews

MS-DOS HARDWARE

ULTRAVISION

Published By: Personics
For: MS-DOS, EGA and VGA systems
Suggested Retail: $119.95
Reviewed By: Woody Liswood

UltraVision does so much so well that I would consider it a necessary add-on to any EGA system.

UltraVision is a hardware and software system. A small board goes into the feature connector found on all EGA cards. (The card is available free of charge with a mail-in card for those who need it; VGA systems don't require the card). Personics calls it a "supercharger" board. The UltraVision TSR software works, in conjunction with that board, to give you a better display and more options than any of the VGA boards around. On my Mitsubishi multisync monitor, I get a character display of 9 x 19 dots per character rather than the standard EGA matrix of 8 x 14. I find that the default fonts are easier to read, sharper, crisper, and generally easier on the eyes than any of the EGA or VGA boards I have experienced.

UltraVision comes with 20 fonts for customizing your screen to your liking. Tired of the standard 80 x 25 line screen? UltraVision lets you break that barrier by going up to 132 columns and 60 lines. There are two graphic modes of 640 x 350 and 640 x 480. UltraVision comes with specific drivers and/or instructions for most popular programs, so you can address all of the capabilities of your hardware.

Installation is a snap. The manual features pictures of the EGA boards supported by UltraVision. After you install the booster card, the documentation shows you a picture of that board and tells you what DIP switches to set. For example, I have a Video-7 EGA card. I was instructed to set the SW2 DIP on that card to indicate an Enhanced Color Display. The B&W picture shows the card, points to both the feature connecter and SW2, and then displays a diagram to show exactly how the DIPs should look when set correctly.

The software installs rather easily—run install, then answer some questions. You will need to adjust a series of display screens so that they are centered on your monitor.

UltraVision comes with two additional device drivers, one to help improve compatibility with Windows, Carousel, and other mouse-based programs. I don't have any experience with Carousel, but understand that there are still problems in using it with UltraVision. Along with this, there is an UltraVision-specific ANSI.SYS which solves some problems for programs (as well as DOS 4.0) which are not expecting the extra capabilities of UltraVision. A program called 386LOAD or LOADHI loads the UltraVision TSR into high memory above the 640K barrier.

The UltraVision software lets you change among its seven options at any time. You can have a variety of color sets and palettes. You can automatically add color to typically non-color-using programs by "colorizing" the screen and display. I found that I had to leave colorization completely off, or I had very strange-looking displays in Freelance Plus. You can also select what 25- and 43-line font you want to use. Lastly, you can set the screen display size. You don't have to call up the TSR because all of these options can also be activated from a command line.

There are special pre-boot programs to customize specific programs to UltraVision. For example, I use a WS.COM, a pre-boot to WordStar. I set the UltraVision command line to a 120 x 43 line display. This way, on my screen, I can see all of the characters in a proportionally spaced line and eliminate scrolling back and forth just to see a single line of text. Makes for easier writing.

I would never give up my UltraVision card. The character display is better than that of any of the VGA or EGA boards I have used.

The newest release of UltraVision (2.0) supports VGA cards without having to use the

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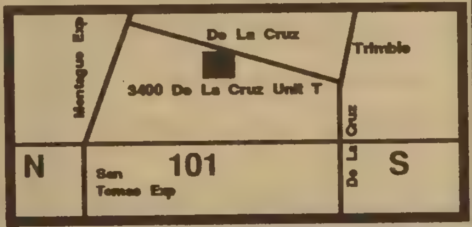

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piggyback boards. Additionally, using the ANSI.SYS file supplied with UV, you can now assign macros to F11 and F12 if you have the enhanced keyboard. (Personics, 63 Great Rd., Maynard, MA 01754, 508/897-1519)

> **I have started to search for the cards which do everything. The Boca AT I/O Plus board offers up to 4Mb of extended or expanded memory, along with a parallel and two serial ports.**

BOCARAM AT I/O PLUS

For: MS-DOS machines
Manufactured By: Boca Research
Suggested Retail: $225 for OK
Reviewed By: Woody Liswood

I have run out of slots. What with bus mice, memory cards, hard drive cards, floppy drive cards, 32-bit slots, 16-bit slots, 8-bit slots, modem cards, fax cards, scanner cards, digital plotters, printers on LPT1, printers on LPT2, Modems on Com1 or Com2, plotters on Com1 or Com2, Interrupts all over the place, and memory addresses flying on the breeze, I have started to search for the cards which do everything. In that category, I found the Boca AT I/O Plus. This board offers up to 4Mb of extended or expanded memory, along with a parallel and two serial ports.

I tested the Boca AT I/O PLUS board on both an ALR 386 and a no-name 286 clone, both running at various speeds and with various motherboard memory of from 640K to 2Mb. I had no problems with any of those configurations.

The board itself comes with four banks for chips. Mine came with two banks (2Mb) of 100ns one-megabit DRAMS. I added another two megs for testing purposes with no problems. You must, however, use either two or four megabytes' worth of chips—there is no provision for one or three megs. You will also need to redo your CMOS setup to show how much memory you actually have in your system.

While there are some jumpers which you may want to set depending on how you want to use the I/O ports, most of the board's operation is software configurable and stored on the board in a EEPROM.

The documentation is concise and complete. It also has, if you need it, a reasonably lucid explanation of the differences between conventional, expanded, and extended memory. The Bocaram supports all of those types and comes with a LIM EMS 4.0 driver as well. On my 386, I just left the board assigned to extended memory, since I already had two megabytes of conventional and extended memory on board. With the other configurations, I tried various mixes of expanded and extended memory and, again, had no problems.

The board's parallel port can be set using a jumper to either LPT1 or LPT2. It can also be disabled. The normal interrupt is IRQ7. Both serial ports can be either Com1, Com2, Com3 or Com4. You can also use IRQ3, IRQ4, or no IRQ assignment. I tried various combinations of COM ports and IRQ assignments, with no problems. The CheckIt program also reported that the jumper assignments I selected were implemented as assigned. I have found, with some other I/O boards, that the IRQs were not implemented correctly, no matter at what the jumpers or DIPs were set.

An EMS driver accompanies the Bocaram board. It lets you set the amount of expanded memory you want. A RAM disk program also lets you set up to four RAM disks. One nice feature of this program is that it gives you the ability, without rebooting, to deallocate a RAM disk and regain that memory space back for program usage. A print spooling program also lets you have a efficient print spooler which works with the expanded memory driver. Lastly, a diagnostic program works out the Bocaram board and tells you if you have any problems. One great feature of

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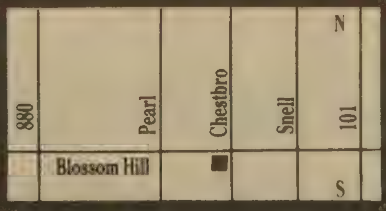

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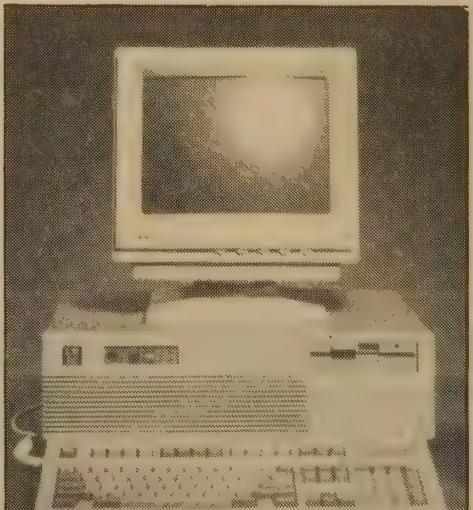

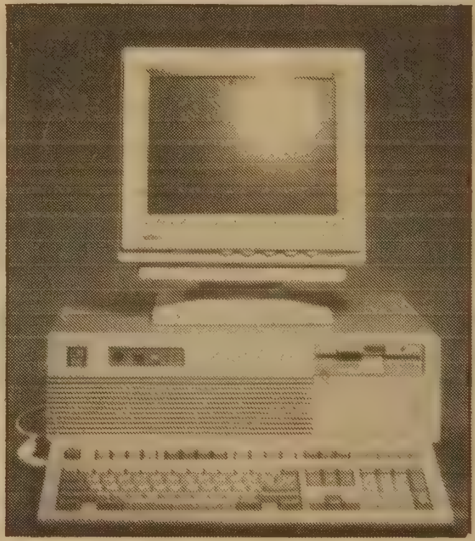

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the test program is that, if it finds a problem with a memory chip, it tells you exactly which one it is.

Other programs which come with the board are an emulated expanded memory manager which has an explanation in the documentation, but which I could find no use for. An expanded memory status program tells you what you are doing; a configuration clearing program erases the EEPROM configuration should you want to move the board from one machine to another; an advanced installation program is available for those types who like to customize memory page settings and fine tune the Bocaram's performance; there's even a zero wait state driver if your machine can handle it.

All in all, a nice piece of work.(Boca Research, Inc., 6401 Congress Ave., Boca Raton, FL 33487-2841, 407/997-6227)

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FAX96 FAX BOARD

For: MS-DOS machines
Manufactures By: Fremont Communications Co.
Suggested Retail: $195
Reviewed By: Birrell Walsh

You've seen the ads that say "This is as low as Fax can get," with the guy lying on his side. I was intrigued, so I got in touch with Fremont Communications and got one of their $195 FAX96 boards. I've tried it. It's good. How do they sell it so cheap?

The board transmits and receives CCITT Group III faxes at 9600 baud. It will display the incoming fax on your screen so you can dump it if it is junk fax. It will monitor your phone in the background while you use another application, and take over the computer if it detects an incoming fax. You can print the fax on your printer, and if you have a laser printer you get a better-looking product than most fax machines produce. FAX96 will convert ASCII, TIFF (Uncompressed, Packed or CCITT) and PCX files for transmission. You can use a cover letter or not, as you choose. Incoming faxes are stored on your disk unless you delete them.

The card comes with a thorough, fun manual, so you can get it running with minimal grief. Its master screen looks a lot like a fax machine control panel. They designed it that way. "G" for "Go" usually does the right next thing.

This is a fax machine that lives in your computer. It is not a modem, although it does not interfere with my internal modem. It is also not a scanner, which most standalone fax machines have built in. If you have a scanner which produces TIFF or PCX files, you have the works. For a few bucks more, you can get OneLiner Software ($49.95) which allows a phone answering machine and FAX96 to share the same line, and FarFetchFax ($49.95) which permits the remote redirection of faxes to another phone.

The company has a decent warranty and a good attitude. How *do* they make it so cheap? (Fremont Communications Co., 46309 Warm Springs Blvd., Fremont CA 94539, 415/438-5000)

MS-DOS SOFTWARE

CHECKIT

For: MS-DOS
Published By: TouchStone Software
Suggested Retail: $149
Reviewed By: Woody Liswood

There are only a few programs I think you *must* have if you have a PC. Norton UnErase, Optune, and Backit have long been my stan-

continued

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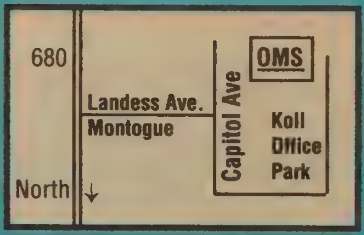

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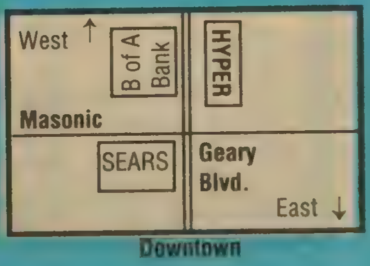

Especially if your system requires a lot of programs and accessories to work with each other, CheckIt will help you keep everything running smoothly.

dards, and just recently CheckIt has been added to my list. Run, don't walk, to your computer store or mailbox and get this program. You will not be sorry.

Especially if your system requires a lot of programs and accessories to work with each other, CheckIt will help you keep everything running smoothly. CheckIt looks around, checks everything—memory, ports, video, interrupts, and TSRs—to tell you what works, what doesn't, and what you might do to ensure compatibility. As you add more cards and functions to your computer, something is bound to conflict with something else—CheckIt will tell you about those conflicts and help you set up your computer so that it works properly.

CheckIt checks the configuration of your computer and tells you what you have, what the chip's BIOS set is, and what dates it finds in those chips. It tells you what the hardware interrupt (IRQ) lines are and what devices are using them; it also gives you the DMA assignments. It shows you what you have stored in your CMOS configuration and allows you to change those settings if you wish. CheckIt shows you all of your device drivers and where they are installed in memory.

The main information section shows you the version of DOS you are using, as well as who manufactured your BIOS and what the BIOS date is. You will know the type of processor and coprocessor you have. CheckIt also tells you how much base, expanded, and extended memory you have. Along with the type of video adapter you have, CheckIt shows you the video address it uses. The hard and floppy drive types are shown, as well as the parallel and serial ports and what addresses they are assigned.

When you look at the Interrupt Screen, each IRQ is listed along with the device assigned to it. If more than one device is assigned to the same interrupt, both are listed. This screen also shows the DMA assignments and lists each device assigned to a DMA channel. The CMOS screen shows the information shown in the CMOS table as well as the complete information about your hard drive including type, cylinders, heads, sectors, precompression, landing, and size. The Device Driver screen shows both segment and offset for each device as it was assigned by DOS.

A test menu tests virtually everything you can have inserted in or attached to your computer, including laser printers. The memory test will even tell you what chip is bad. There are standard hard and floppy tests, as well as coprocessor, DMA and interrupt chip tests. Both serial and parallel ports can be tested even if you don't have a loopback device. There are printer tests specifically for Epson, IBM and HP LaserJet printers, as well as a generic printer test. The video tests include all video pages and display modes. Input Device tests include three different keyboards, as well as a mouse and a joystick test.

Since I am always testing different equipment, I found the performance benchmark tests quite interesting. I found that my Video 7 VGA board was the fastest device I had—even faster than the NEC graphic engine board. CheckIt also told me that even though I have a 20 MHz system, it was running at only about 18.5 MHz of real speed.

A tools section lets you locate the exact physical position of a bad RAM chip, set the CMOS or Real Time clock. There is also a low level format for a hard disk for 286 and 386 machines.

I could not find anything that didn't work with this program. It may not be for everyone,

continued

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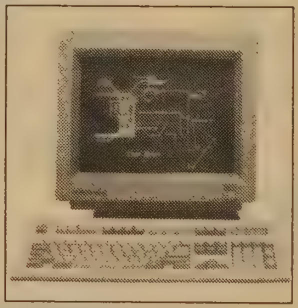

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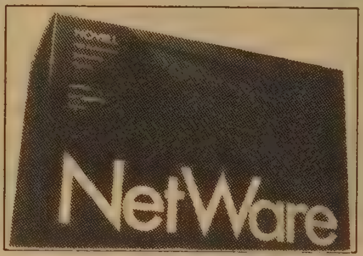

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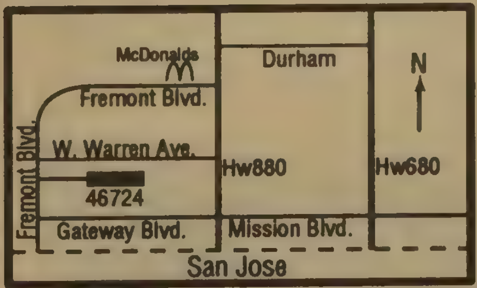

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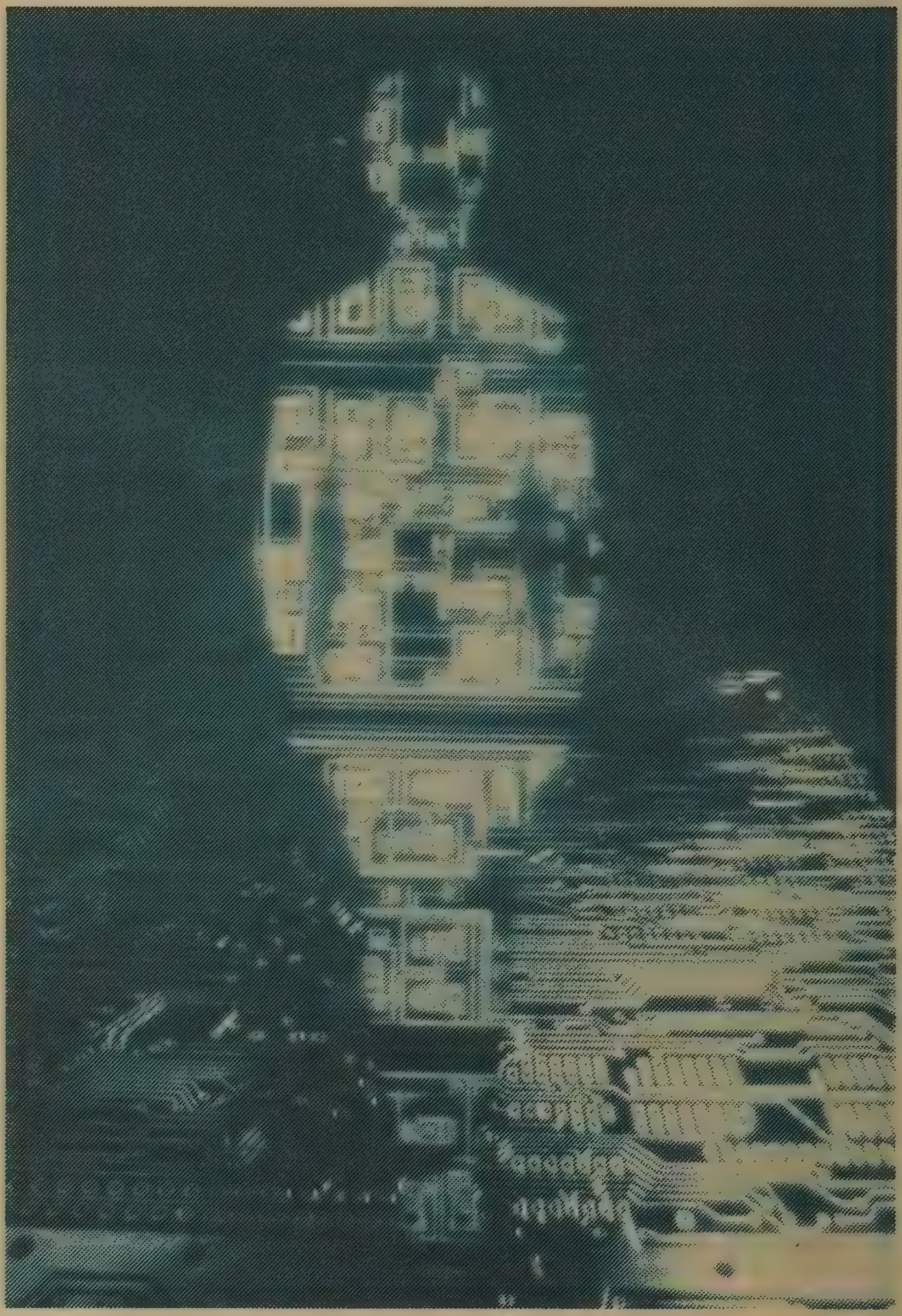

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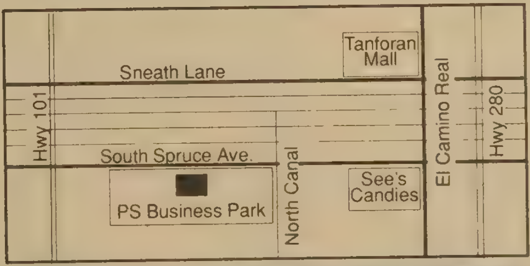

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but if you have a heavily-loaded system, you may need CheckIt to ensure that everything is working with everything else. If you are responsible for someone else's computer, CheckIt is invaluable in diagnosing everything and anything that might go wrong. One of the most important programs in my library.(TouchStone Software Corporation, 909 Electric Avenue, Seal Beach, CA 90740, 213/598-7746.)

EYE RELIEF

For: MS-DOS
Published By: SkiSoft
Suggested Retail: $295
Reviewed By: Birrell Walsh

Eye Relief is a large-print word-processor.

Why a large-print word processor? The user who has bad vision needs a large print screen. But there are other uses. We originally got the product to facilitate meetings for the University of California Adult Onset of Deafness project. It makes it possible for many people to see what has been typed, so by turning the monitor to face the crowd you get real-time captioning. A large-print word processor also makes a difficult-to-see laptop screen a joy to write on, even in bad light. Then there are teleprompters for broadcasting. Or middle-aged eyes that would like the print just a little larger...

Eye Relief received two awards in 1990 from the Software Publishing Association because it has been very carefully designed. It has five type sizes, from tiny to JUMBO. These are not jaggy expansions of the basic screen font. Each has its own font, so the screen looks good at each type-size. You can adjust the space between letters, independent of the size of the characters. This feature is especially important to people with macular degeneration, the most common of visual impairments.

Eye Relief has all the basic word-processing functions available, from drop-down menus or control keys. You also have word-count, a sadly rare feature that authors really need.

Printing is elementary. Eye Relief files are ASCII files. The advantage is that they are easy to move to publishing packages or to send by modem. The disadvantage is that you have little formatting within the program. If you have an HP compatible LaserJet, you can print in an 18 point as well as a 12 point type-face.

The manual is in large print and complete. SkiSoft is flexible and helpful in adapting its product to special needs. (SkiSoft Inc., 1644 Massachusetts Ave., Suite 79, Lexington MA 02173)

INFO SELECT

For: MS-DOS
Published By: Micro Logic
Suggested Retail: $99
Reviewed By: Birrell Walsh

The phone rings while you are working on your spreadsheet. Mr. Xerxes wants to know if his job is done. Before he is through his sentence, you have five notes on the screen telling you about every transaction you have ever had with Mr. Xerxes. He's happy you remember. You're happy you sound so well-informed. You have just used Info Select, the new RAM-resident personal information manager from Micro Logic.

Info Select is descended from Tornado Notes. Like Tornado Notes, it makes a simulation of many small notes on your screen. You can enter any kind of text data into these notes, and find them quickly with Info Select's incredibly rapid retrieval system.

What makes Info Select such a useful tool is the richness, speed and simplicity of its retrieval. You find notes by typing "g" and then a word or phrase that will be in the note or notes you are looking for. Before you finish typing, the notes are there.

Info Select is like Tornado Notes with everybody's wish list included. It now has date recognition and tickler files, so you can use it for "to-do" files. It can import and export text files—goodbye to "edlin" for editing Autoexec.Bat—and import from dBASE files. It has mailmerge, autodialing, a creditable hypertext function, and an automatic display so you can use it for a self-running show-and-tell. If you are a lateral thinker, you probably like lots of pieces of information that you can rearrange in new patterns. This program lets you do it. Info Select may become a cult object.

By the way, the story about Mr. Xerxes happened to me. When I called Info Select's PR man, he had my name and address on the screen before I finished spelling my name. I was impressed. You will be too. (Micro Logic, PO Box 174,100 Second St., Hackensack NJ 07602, 800/342-5930, 201/342-6518)

MATRIX LAYOUT

For: DOS
Published By: Matrix Software
Suggested Retail: $199.95
Reviewed By: Birrell Walsh

Layout is a visually based programming system for DOS. You pull down menus and choose functions to include in your flowchart. You can use the functions that Matrix includes or design your own "black boxes" (additional functions and procedures of any size) in any compiled language. Layout builds the program for you, displaying a current flow chart at each step.

Layout programs are graphic. They use buttons and "hot regions" to let the user navigate by mouse or tab-key. A paint program is included to design the screen and graphics. Layout uses the "card" metaphor, as in Apple's HyperCard. You can design a dBASE-exportable database in short order, and include graphics and cross-linking. It produces compiled, fast programs, or it will give you commented C and Pascal source code.

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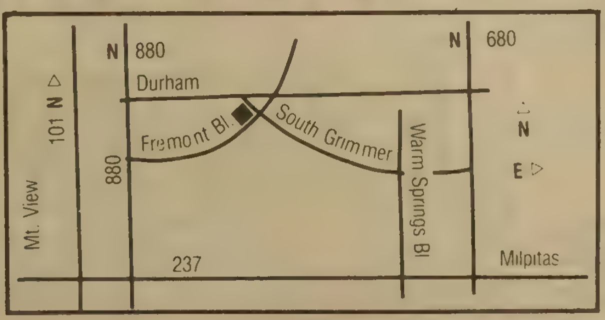

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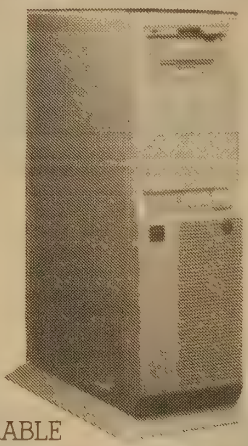

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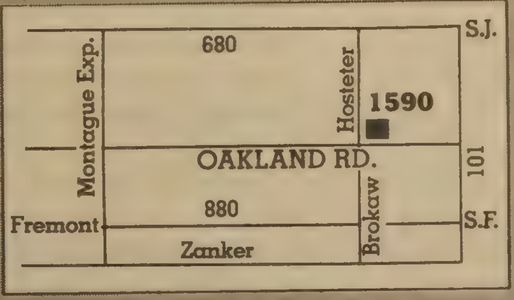

Matrix Layout is an excellent tool for an intermediate programmer who wants to design graphic programs quickly and painlessly. At $200, it is a remarkable deal.

but it is somewhat misleading. You must be able to think in the sequence-branch-loop pattern to use Layout. Layout's documentation is friendly but (alas) incomplete. You can usually figure out how to make things happen if you have programming experience. Otherwise you will freeze up solid when you are confronted with "The result of opening a window" in one of Layout's dialog boxes.

Because you can design your own "black boxes," Layout is infinitely extensible. Matrix has database and telecommunication blackboxes for sale. Third-party support is likely in the future. Layout is good for prototyping, and would serve well as the official corporate development platform. It is an excellent tool for an intermediate programmer who wants to design graphic programs quickly and painlessly. At $200, it is a remarkable deal. (Matrix Software, One Massachusetts Technology Center, Harborside Dr., Boston, MA 02128, 1-617-567-0037)

PROJECT OUTLOOK

Published By: Strategic Software Planning Corporation
For: Windows
Suggested Retail: $395
Reviewed By: Woody Liswood

Real project planning has made it to the Windows environment. Project Outlook does almost everything that the up-to-date project planner needs.

You can work from a GANTT or an Outline view. You can also expand and collapse the plan using different views and filters, and easily switch between these views. Project Outlook also allows a baseline project so that changes can be compared to actual experience on both a timing and a cost basis. Project Outlook works using the CPM (Critical Path Method) rather than from a PERT basis, so if you must have PERT charts, you'll need to develop them elsewhere. Finally, Project Outlook directly imports and exports PROMIS files, so that you can communicate directly with one of the advanced systems.

Since Project Outline runs under Windows, you will probably be familiar with the menu structure. However, Project Outline uses a specialized set of icons and toolbox icons for many of the features, so you will do well to do a tutorial and keep the reference book handy as you start into the program.

The outline approach works automatically. You can use either a top-down approach, where you start with the major summary activities and then add the detail, or a bottom-up approach, where you do the details first and add the summary bars as you finalize your project. In the automatic entry mode, Project Outlook automatically assigns activity codes for you, thereby creating a WBS (Work Breakdown Structure) for you.

Project Outlook's GANTT view is really nice to work with; the value of Windows comes into play. One particularly nice feature, for me anyway, is that I can extend or decrease an activity time by double clicking on the GANTT chart bar and using the mouse pointer to move the end of the bar to the time you desire. If you want to link two tasks, you just click on one, then the other.

Project Outlook uses two separate editors to work with either the baseline plan or the actual plan. When you create a plan, you get a dialog box where you assign a Project ID, Code Name, Project Name, Creator Names, Owner Name, Manager Name, Location Name, and Contract Amounts. Also, you can assign Start Date and Deadline Dates. You can choose manual, or automatic sequencing of tasks, and use the automatic outline function. Links can be defaulted to Automatic Start to Start or Finish to Start, or none.

As you design the project, you will make extensive use of the toolbox icons. For example, you may want to add an activity. You would click on the add icon, then click on the activity that you want to create a subactivity under. This then opens a normal activity dialog box for you to enter in the activity details such as name, time and type of activity. When you click on a linking icon, you will get a dialog box to specify the predecessor and successor activity, set a lag value, if needed, and select the type of link, finish to start, start to start, or finish to finish. If you make a mistake and inadvertently create a looped link, Project Outlook displays an error message and will not let you create the loop.

As you work, you may find that you need to move things around. There are extensive cut-and-paste facilities. If you cut a link and thereby cause the activity to become completely disconnected from the rest of the project, Project Outlook assigns the project start date to the activity.

One feature I found especially useful was a trace function. You can trace any particular path through the project. Project Outlook also has a search and find facility, so that you can look for text, even search and replace.

Project Outlook's calendar function lets you show weekly, monthly, quarterly or yearly views.

There are two icons at the top of the editing screen, one for the baseline editor and one for the actual editor. When you are recording the actual results of the activities of your project, you would use the actual editor to enter the information. However, you can switch between them so you can modify the baseline as you go along, as well as continue to enter actual data. I found this to be an interesting feature, since I could modify the baseline for those activities which had not taken place yet based on the actual results of the current and past activities, and fine-tune the project plan as I went along.

You will find extensive options for printing as well as date filters. As you would expect under Windows, you have extensive control of fonts and type point sizes, as well as the page size and orientation. I had no problems with any printing activities using a HP LJ II.

Importing and Exporting data is relatively easy. When exporting, you can create the name of the file, as well as define it as a fixed format, a delimited file or a tab delimited file.

All in all, Project Outlook is a complete and functional project planner which operates under Windows. It has all of the features you will need to plan and track most projects. It is not as complete as the DOS products such as Super Project Expert, but the ease of use and functionality under Windows go a long way in making Project Outlook effective. (Strategic Software Planning Corp., 150 Cambridge Park Drive, Cambridge, MA 02142, 617/354-1504)

MACINTOSH HARDWARE

EHMAN 45 MB REMOVABLE CARTRIDGE DRIVE

Manufactured By: Ehman
For: Macintosh
Suggested Retail: $749
Reviewed By: Mike Markowitz

The Syquest 45Mb removable cartridge drive is a *de facto* standard that developed almost entirely without the support of Apple Computer. Half a dozen manufacturers sell the drives under their own brands; Ehman has now set a new low price of $749.

The cartridge is a magnetic platter in a plastic case about 5.25" square. A shutter is pushed aside when the cartridge is inserted in the drive, allowing a conventional read/write head to almost touch the platter. This sounds fragile, but the drives have proven very robust in service. The 30,000 hour "Mean Time Between Failure" is better than typical floppy drives; worse than a quality hard drive. The formatted capacity is about 42Mb, with an average access time of 25 milliseconds and a

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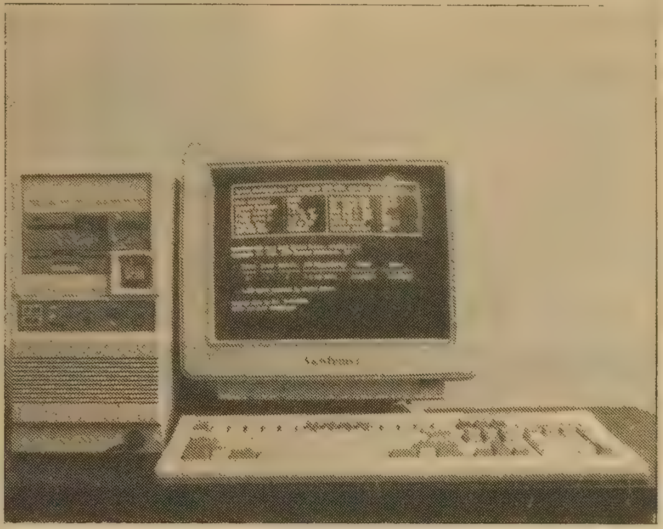

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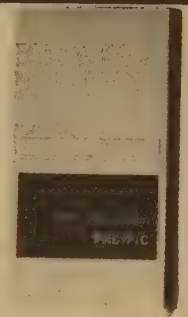

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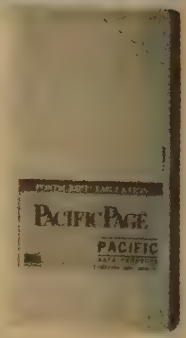

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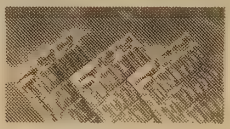

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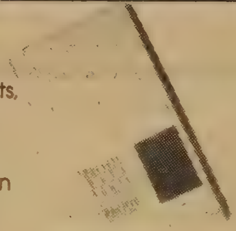

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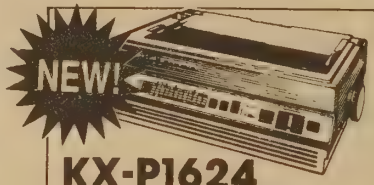

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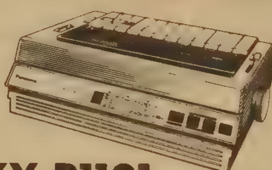

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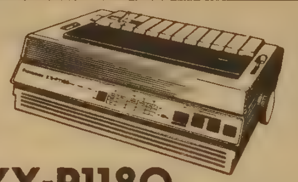

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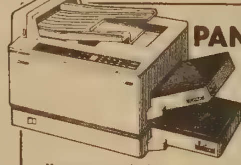

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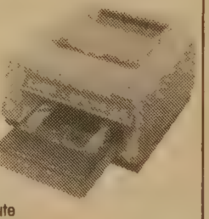

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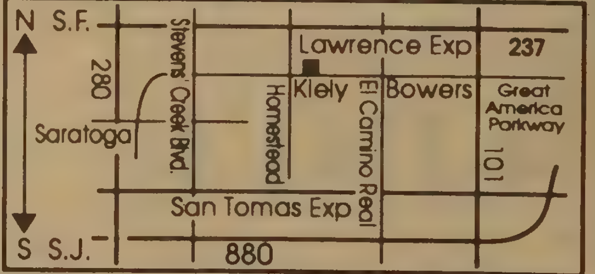

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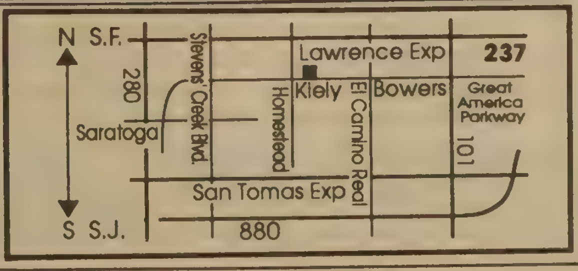

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A removable cartridge drive is much faster than any tape drive, and unlike tape, it can function as a hard disk when it is not used for backup.

theoretical data transfer rate of 1.25Mb/sec.

The Ehman drive has an audible fan. The SCSI ID is set with a push-button switch. Both SCSI ports use a DB-25 connector, rather than the more common 50-pin connector. The special cable is included with the drive. To eject a cartridge, you first dismount it by dragging its icon to the Trash, then press a button, wait for the platter to spin down (a red LED stops flashing) and move a rather flimsy lever, which trips an ejection spring.

A removable cartridge drive is much faster than any tape drive, and unlike tape, it can function as a hard disk when it is not used for backup. When you run out of space on the platter, another cartridge costs about $79. Cartridges formatted on one brand of drive seem to work without problems on other brands.

The drive is shipped with a cartridge formatted for a Mac Plus (1:3 interleave). If you have a faster CPU, you should reformat the cartridge for optimal performance. A no-frills utility disk is provided to format, partition and verify the cartridge. A small INIT file (SQ-555) placed in your system folder causes the Finder to treat the cartridge like a floppy disk. Unfortunately it also seems to conflict with Apple File Exchange (AFE). When AFE is launched, it "sees" the cartridge as the first floppy disk, gets confused trying to read it, and leaves you trapped in a dialog box with no exit. The only solution is to turn off the drive and restart.

Documentation includes a SCSI Hard Drive manual of 100 pages and a 14-page booklet describing the specifics of the removable cartridge drive. The Ehman drives are internally terminated—you must open the case to remove the terminating resistors.

At this writing, advertised prices ranged from $975 to over $1100 for the same mechanism packaged by competing vendors. For a higher price you might get better documentation, or bundled utility and public domain software. In a few years, erasable optical media holding vastly more data may be available at the same price point, but right now, the 45Mb removable is a cost-effective solution for mass storage. (Ehman,
97 South Red Willow Rd., Evanston, WY 82930, 307/789-4656)

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For: Macintosh SE, SE/30, II, IIx, IIcx or IIci
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Reviewed By: Mike Markowitz

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The disadvantages of the mouse are more subtle. You need almost a square foot of desk top for a mouse pad. The rubber ball and mechanical rollers need occasional careful cleaning. Some people with long fingernails find the mouse difficult to use. But above all, controlling the

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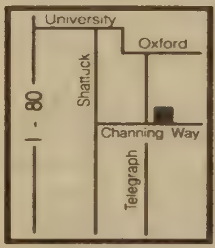

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The Felix technology is more reliable than the opto-mechanical mouse, and most users will find it pleasant and natural to use, after a little practice.

mouse uses muscles of the wrist and forearm that may not be adapted to fine movement.

Felix is a mouse alternative that uses the muscles of the thumb, index finger and middle finger, which are exquisitely adapted to precise motion. Felix plugs into the ADB (Apple Desktop Bus) port of a Mac SE or later Macintosh. The small sculptured handle rises from a flattened gray plastic case about six inches square. The handle slides freely within a 1.5" square, so that a relatively small finger motion moves the cursor across a considerable distance on the screen. Your index finger rests on a black lever that serves as the mouse button, which has a light action and an audible click.

Felix was originally developed by Lightgate, Inc. which apparently went out of business. Altra bought the rights to the product and brought it to market. The technology is quite sophisticated. The handle has projections that interrupt intersecting beams of light from LED's inside the case. Sensors measure the light intensity and a microprocessor converts this information to X- and Y-coordinates. The mechanism is sealed against the entry of dirt, and never needs cleaning.

While a standard mouse senses relative motion, Felix maps the absolute dimensions of the screen. As a result, you must calibrate every time you restart the computer, by moving the cursor around the screen edges.

Without its special software driver Felix can emulate a standard mouse, but you need to install a small (about 21K) startup file (INIT) to enjoy the full functionality of the device. This software provides a control panel device (CDEV) that lets you remap the range of motion to a small area of the screen (1, 2, 3 or 4 inches square), and select several options.

Felix can treat multiple monitors as a single continuous space, but it provides better control when you define its range of motion as a single monitor. You can toggle between these options with a keystroke. You can also make the cursor snap directly onto the Apple Menu item when you move Felix to the left limit of travel (after first moving it to the top limit, so the microprocessor will not think that you want to snap onto the Close box of the active window.). The Felix CDEV also has a "Paint/Signature" mode. Apparently this is intended to disable the Mac's standard non-linear mouse scaling , which makes the the displacement of the cursor very sensitive to the velocity of your hand motion. The feature did not work properly in the current release of the Felix software.

An illustrated 22-page leaflet provides clear instructions for installation and use, but the the software description was for an earlier version than what was inside the package. There is an 800 number for technical support, plus online support on AppleLink and MacNet.

The Felix technology is more reliable than the opto-mechanical mouse, and most users will find it pleasant and natural to use, after a little practice. I used the device without any difficulty on a variety of drawing and painting programs. The requirement for a special software driver is worrisome—it creates the risk of potential incompatibilities. The real advantage of this device is that it could be built right into a keyboard, as a value-added enhancement. As a $169 add-on, however, it is unlikely to ever be more than a novelty. (Altra,1200 Skyline Dr., Laramie, WY 82070, 307/745-7538)

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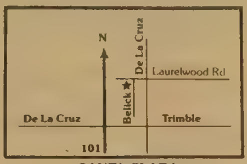

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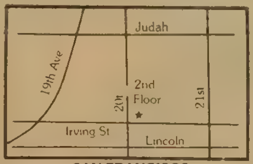

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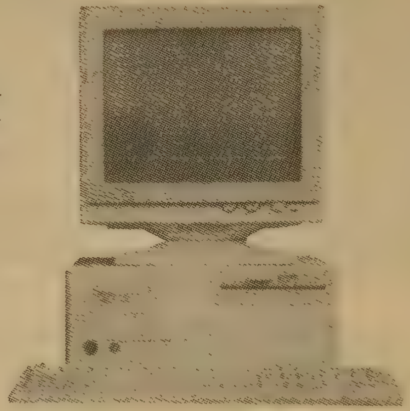

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GAME REVIEWS

QUICK BYTES

By Mike Markowitz

WHERE IN TIME IS CARMEN SANDIEGO?

Published By: Brøderbund
For: IBM PC and compatibles, Apple II
Suggested Retail: $44.95

If most American students regard history with the same sort of aversion that the President reserves for broccoli, perhaps it is because history is usually taught in such a pedantic or trivial way. We study the past to understand the origins and causes of things we see in the present, to know what worked and what didn't (like Fascism). We study the past to celebrate the diversity of human experience, to wonder at what has survived and to grieve over what was lost. Too often, however, we study the past to be able to answer multiple choice questions about the Emancipation Proclamation (Lincoln, 1862) or the Thirty Years' War (Central Europe, Protestants vs. Catholics, 1618-1648).

A new educational game from Brøderbund, Where In Time Is Carmen Sandiego? joins three other titles in a wildly successful series (Where In The World..., Where In The USA..., and Where In Europe...). The package includes a copy of the *New American Desk Encyclopedia,* which packs an amazing amount of information into 1374 pages. The idea is that you have to use the reference book to interpret the clues you discover in the game.

The Apple II version requires only 128K, and the color graphics are not such that you lose much by playing on a monochrome system. On a IIGS the system speed should be set to "Normal." With two floppy disks (four sides), playing on a one-drive system requires a lot of swapping, but (at last!) the game is hard-disk installable (396K of files).

The game is quite challenging, since you have only a limited number of "hours" of authorized time travel, and you burn them up fast while tracking the villains. The games in the Carmen series are exercises in pursuit and deduction. You get several different kinds of clues. Some clues suggest the next place and time to which your suspect has fled. Other clues, harder to ferret out, lead you to determine which member of Carmen's gang your particular suspect must be.

Unfortunately, there are only 12 countries and about 1200 "facts" present in the database. Perhaps this was an unavoidable compromise due to disk space. Teachers report that kids love these games for the adventure. I hope that Carmen's gang is planning to steal a starship next, so we can enjoy "Where In The Universe..?" It would be a great way to teach the facts of astronomy.

The games in the Carmen series are exercises in pursuit and deduction. Some clues suggest the next place and time to which your suspect has fled. Other clues, harder to ferret out, lead you, by a process of elimination, to determine which member of Carmen's gang your particular suspect must be.

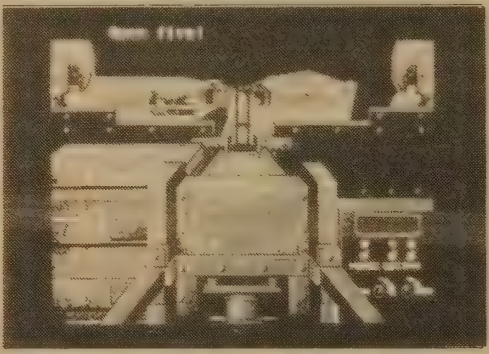
A funny thing has happened to games for the IBM PC and compatibles—they have gotten really good in the past year. Previously, many titles were feeble conversions of games that looked and played much better on Commodore, Atari or Apple hardware. There are several reasons for the increasing quality of PC games, most of which can be summed up under the term "critical mass."

There are more than 35 million PCs and compatibles out there, and perhaps 25% have the CPU horsepower and the color graphics (EGA, VGA, MCGA) to support excellent simulations. More games are supporting high-quality sound boards like the Ad Lib, CMS, and Roland MT32. The Nintendo boom has helped to persuade the venture capitalists and investment bankers that there are profits to be made in high-tech entertainment.

Here are a few noteworthy recent examples, from sea, land and air:

Gunboat:

River Combat Simulation (Accolade) $49.95. Requires 512K, 8MHz or higher speed recommended. Did you like the little PBR (river patrol boat) in *Apocalypse Now*? Is the Jungle Boat your favorite ride at Disneyland? Here are 20 realistic missions along the mosquito-infested backwaters of Vietnam, Colombia and Panama. The terrain is rendered in realistic 3D polygon fills, enriched with bit-mapped enemies and landmarks. You can alternate between four different battle stations, with different views of the passing scenery. Now you don't have to be Sly Stallone to tear up the rain forest with .50 cal machine guns.



Now you don't have to be Sly Stallone to tear up the rain forest with .50 cal machine guns.

Tank:

The M-1 Abrams Tank Simulation (Spectrum Holobyte) $59.95. Requires 640K, PC-AT or equivalent, EGA or VGA graphics, joystick optional. Based on simulation software developed for the US Army's Armor school at Ft. Knox, this is the best tank game yet. Terrain and vehicles are simply rendered as filled 3D wireframes, while your tank's interior is displayed in detailed bit-map graphics. You can command a company, a platoon or an individual tank, and there are enough different maps and views to provide good situational awareness. Both 5.25" and 3.5" disk formats are provided, and the documentation, modeled on the style of a real Army manual, is superb.

There are several reasons for the increasing quality of PC games, most of which can be summed up under the term "critical mass."

The new generation of digital flight controls on aircraft like the V-22 Osprey certainly make the simulation programmer's job easier.

LHX Attack Chopper:

(Electronic Arts) $59.95. 512K required, 640K recommended, keyboard, joystick or mouse. Helicopter flight simulations have always been among the most disappointing computer games. The controls of a helicopter (collective and cyclic control levers, throttle, pedals, etc.) are a complex exercise in coordination, and the mechanics of turning, hovering and transition to level flight require a lot of training to master. A new generation of digital flight controls on aircraft like the V-22 Osprey and the proposed LHX light attack helicopter promise to make the pilot's job easier. They certainly make the simulation programmer's job easier.

The game provides four different helicopters, three different terrains (Germany, Libya, and Vietnam), and hundreds of possible missions. 3D polygon graphics and multiple viewpoints reflect the best current state of the art. The stylish 120-page manual is packed with information on weapons and tactics.

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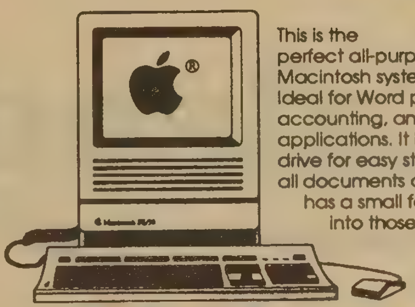

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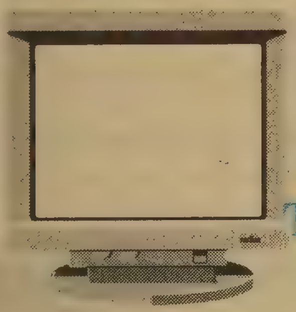

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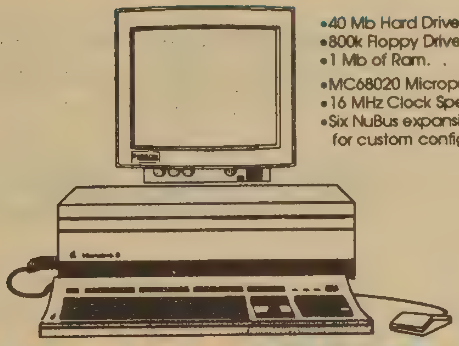

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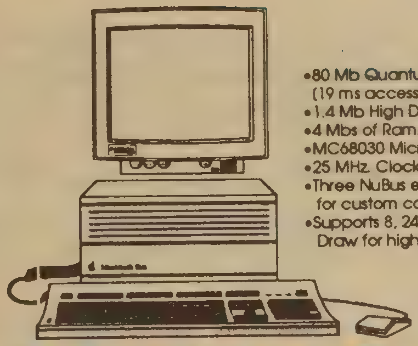

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XT HD Cont MFM/RLL	60
DTC 7280 (1:1 MFM)	89
DTC 7287 (1:1 RLL)	109
WA3 FD/HDD	80
ESDI	170

PRINTERS

Star NX 1000 II	$169
Panasonic 1124	298

MISCELLANEOUS

AT/XT MIO Card	$35
AT/XT Case	50/39
Full/Mini Tower Case	179/125
Mouse	65
2400 Modem	85
DOS 3.3/4.01	65
101 Keyboard	39
Keytronic 101 Keyboard	48
150 W Power Supply	36
230 W Power Supply	50

CHIPS

80287-8/10	$194/218
80387-16/20	340/360
80386-16/20	165/225
64-15/12	1.5/2.0
256-15/12	2/2.30
1 MB-8	88
1 MB x 9-8	80

HARD DISKS

ST-225	$190
ST-238	210
ST-251-1 (40 MB 28 ms)	295
ST-4096 (80 MB 28ms)	545
Toshiba 66 MB	360

MOTHERBOARDS

486-25	$2779
386-33 w/ 64K Cache	995
386-25 w/ 64K Cache	795
386-25/20	650/599
386-16	320
286-16/12	185/140
XT 8088	68

MONITORS

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NEC 3D	589

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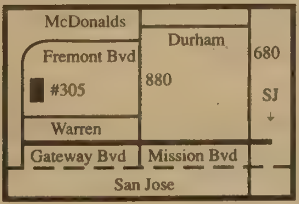

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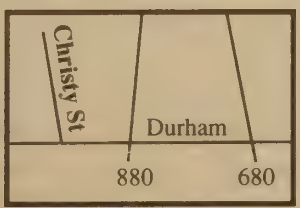

Calendar Of Events *continued*

Oakland. Richard James. Call: 1-800-433-7469.

June 17 Computer Show & Sale. Sacramento. East-West Computer Shows. Call: (415)388-8893.

June 18 Automating Your Business Systems On The Macintosh Seminar. San Francisco. J.C. Lukrich & Co., CPA. Call: Suzette, (415)864-6770.

June 18 Dealer Profitability And Its Effect On Customer Satisfaction Seminar. Menlo Park. Women's Macintosh Users Group. Call: (415)574-8225.

June 18 NCC Utilities: 5101 Network Control Center, Managing A Network Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

June 18–19 Concepts in System Operation Class. Berkeley. Lurnix. Call: (415)849-4478.

June 18–20 Image Processing Technology Conference. Boston. Wang Institute. Call: (508)649-9731.

June 19 How To Automate Your Business Accounting System Seminar. San Francisco. J.C. Lukrich & Co. Call: Suzette, (415)864-6770.

June 19 Lotus 1-2-3, 2.X Graphics Course. San Francisco. Training Works. Call: (415)243-0100.

June 19 Microsoft Word On The Macintosh Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 19 Problem Prevention And Troubleshooting Class. San Francisco. Training Works. Call: (415)243-0100.

June 19–20 NETUCON '90 Conference. San Jose. Northern California NetWare Users Assoc. Call: 1-800-463-1267 ext. 5994.

June 19–21 Eighth Annual PC Expo. New York. H.A. Bruno, Inc. Call: Mark A. Haviland, 1-800-444-3976.

June 19–22 SQL: A Hands–on Workshop Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

June 19–22 Hands-On Datacomm And Networks Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421–8166.

June 19–22 Real-Time Structured Analysis & Design Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421–8166.

June 19–22 Digital Signal Processing: Techniques & Applications Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

June 19–22 SQL: Hands-on Workshop. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

June 20 Advanced PageMaker Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 20 Women's Positioning In The Marketplace Seminar. Santa Clara. Women's Macintosh Users Group. Call: (415)574-8225.

June 20 PageMaker, Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

June 20 Shop Till Ya Drop Computer Swap. Santa Clara. Richard James. Call: Vicki, 1-800-433-7469.

June 20–21 System Administration Class. Berkeley. Lurnix. Call: 1-800-433-9338.

June 21 Advanced WordPerfect On The Macintosh Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

May 21 Microsoft Word For Windows Presentation. San Francisco. San Francisco PC Users Group. Call: (415)221-9166.

June 21 PageMaker, Part II Course. San Francisco. Computer Alliance. Call: (415)771-1671.

June 21 Intro To Broadband: Data Communications Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

June 22 Introduction To Macintosh Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 22 MacroMind Director 2.0 Class. San Francisco. Abacus, Inc. Call: Deborah Starnes, (415)759-9508.

June 22 & 29 Ventura Two Day Course. San Francisco. Training Works. Call: (415)243-0100.

June 22 & 29 Ventura Desktop Publishing Class. San Francisco. Training Works. Call: (415)243-0100.

June 23 dBASE III+ Session 1 Course. San Francisco. Training Works. Call: (415)243-0100.

June 23 Computer Show & Sale. Hayward. East-West Computer Shows. Call: (415)388-8893.

June 23 Hypertext Workshop. San Francisco. U.C. Berkeley Extension. Call: (415)642-4111.

June 23 Shop Till Ya Drop Computer Swap. San Mateo. Richard James. Call: 1-800-433-7469.

June 23 Introduction to Graphics Course. San Francisco. Computer Alliance. Call: (415)771-1671.

June 24 Computer Show & Sale. Santa Rosa. East-West Computer Shows. Call: (415)388-8893.

June 24 Computer Show. San Francisco Fort Mason Shows. Call: (415)725-0228.

June 25 Advanced Excel Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 25 Paradox Session 1 Course. San Francisco. Training Works. Call: (415)243-0100.

June 25 Macintosh Camp For High School Seniors: Intro To Macintosh Class. San Francisco. Abacus, Inc. Call: Deborah Starnes, (415)759-9508.

June 25 SuperPaint Class. San Francisco. Abacus, Inc. Call: Deborah Starnes, (415)759-9508.

June 25–26 System Administration Class. Berkeley. Lurnix. Call: 1-800-433-9338.

June 25–28 Advanced C Programming Class. Berkeley. Lurnix. Call: (415)849-4478.

June 26 Wingz Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

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PC-RECIPE (462)-Computerize your recipe box. Program will recalculate ingredients.
BARTENDER (274)-Be the hit of the party and mix the best drinks!!
CROSSWORD CREATOR V.3.30 (442)-Create crossword puzzles for fun or learning. Great for Crossword fanatics.
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UTILITIES 1-2-3 (121)-Very useful Lotus utilities with macros, templates, hints and more.
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LEGAL FORMS (134,135)-Over 100 legal forms that can be easily customized to your needs. (2 disk set)
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PC-CALC+(487,488,489)-Buttonware's very powerful spreadsheet program with graphing, macros, business functions, trig, & more (3 disk set)
BUSINESS PLAN (432)-Complete outline & tutorial for creating a business plan.

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WORDPERFECT TOOLS V.3.0 (512)-For 5.0 only! Great tools for any user!
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WPKIDS (348)-A Word Processor for kids!!!
WORDPERFECT 5.0 MACROS (450)-Disk filled with macros. A must!!
PC-STYLE & PC-READ (352)-Writing analysis program. Helps you write more professionally.
POP PERFECT (344)-Menu & mouse system for WordPerfect 4.2.
SPANISH/ENGLISH (453)-Program to translate any file from English to Spanish or vice versa.
WORDPERFECT 5.0 TUTORIAL (485,486)-WordPerfect tutorial learning system. Become an expert at WordPerfect!!
SLIC WORKS V.1.0 (525)-Powerful spreadsheet, database, word processor & communications program. FrameWork Clone.

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B-WARE (114)-Adult entertainment trivia, poker, etc.
NASTY (116)-That says it all!!!
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1 On 2 (354)-XXX Rated. . . . Fantastic!!
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EROTICA (526)-Sizzling, true to life animated show!!
INTERSEXION V.1.01 (373)-X-Rated monopoly game with 5 levels of PLAY!! Includes trivia, jokes & more.
BAD-BAD (111)-Adult adventure game.
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GAMES

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#3 **EDUCATION** Amy's First Primer, Animals, Fun with Numbers, Map, Tell Time, Kids Games, ABC Games, Funnels & Buckets, IQ Builder, Educate.	#4 **GAMES** Center Fielder, Global Thermal Nuclear War, BlackJack Strategy, Striker, TurboBall, Aldo's Adventure, Pacman Games, Scrabble, Miniature Golf, Othello.
#5 **HOME** Lottoman, Finance, PC-Recipe, Loans, Bartender, Aquarium & Instant Paradise, Crossword Creator, The Diet Disk, Supermusic Jukebox, Notepad.	#6 **UTILITIES** PD-Sideways, Baker's Dozen, Automaxx, Directory Scanner, Whereir, DBS-KAT, PC-File III, Disk Labels #1, Format Master, AT Utilities.

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PD-SIDEWAYS (292)-Prints a file sideways on an Epson printer.
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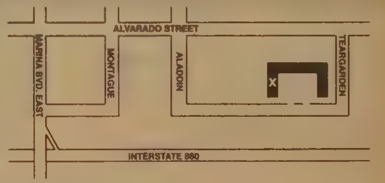

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Artificial Intelligence Associates
July 17 • 12:30–2:00
"Expert Systems: Object-Oriented vs. Rule-Based"

AT&T UNIX User Group
July 17 • 4:00–5:00
"X DOS"

Bay Area Convergent Technology User Group
July 18 • 9:00–12:00

Silicon Valley Computer Society
July 18 • 11:00–12:00
"Database Introduction",
"Multi-media"

APL Bay Area User Group
July 18 • 1:00–2:30
"APL as a Front-End to a SQL Engine"

Stanford Macintosh User Group
July 18 • 4:00–6:00
"Pagemaker"

▲ **Press Event**

Borland International's CEO Philippe Kahn will announce Borland's newest version of Paradox – Paradox 3.5 & SQL Link.

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Calendar Of Events *continued*

July-August

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June 26 Harvard Card Course. San Francisco. Training Works. Call: (415)243-0100.

June 26 Net SIG Meeting. Sunnyvale. Software Entrepreneurs' Forum. Call: Bill Bryant, (415)490-5583.

June 26–29 OS/2: A Comprehensive Hands-On Introduction Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421–8166.

June 27 Aldus PageMaker Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 27 WordPerfect 5.0 Session 3 Course. San Francisco. Training Works. Call: (415)243-0100.

June 27–July 25 Aurora 220 Broadcast Paint Course. San Francisco. Computer Arts Institute. Call: (415)546-5242.

June 27 Macintosh Camp For High School Seniors: Hardware & System Class. San Francisco. Abacus, Inc. Call: Deborah Starnes, (415)759-9508.

June 28 FileMaker Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 29 Aldus PageMaker Class. San Ramon. Adelphi Corporation. Call: Tom Phipps, (415)275-1188.

June 29 dBASE III+ Session 1 Course. San Francisco. Training Works. Call: (415)243-0100.

June 29 dBASE III+ Class. San Francisco. Training Works. Call: (415)243-0100.

June 29 Macintosh Camp For High School Seniors: Microsoft Word Class. San Francisco. Abacus, Inc. Call: Deborah Starnes, (415)759-9508.

June 30 Publishing And Producing Corporate Newsletters Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

JULY

July 5–26 Introduction To Microcomputers Using the PC Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 7–August 18 Desktop Publishing Comprehensive Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 9 MS-DOS For CAD Level 1 Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 9–10 Fundamentals of UNIX Class. Berkeley. Lurnix. Call: (415)849-4478.

July 9–August 20 Desktop Publishing Comprehensive Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 10 Memory And Recording Storage: Future Directions Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)427-6600.

July 10 Basics To Interactive Media Presentation. San Francisco. IICS. Call: (408)866-7941.

July 10–13 C Programming Hands–on Workshop. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

July 10–13 Object-Oriented Design & Programming Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

July 11 Publishing Your Newsletter On The Mac Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 11 Microsoft Word Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 11–12 Intermediate UNIX Class. Berkeley. Lurnix. Call: (415)849-4478.

July 11–13 Dynamic 3-D Computer Graphic Systems for Industrial Design Conference and Exposition. Monterey. BIS CAP International. Call: Kathy Greeley, (617)893-9130.

July 12 Microsoft Word Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 12 dBASE III+ Class. San Francisco. Training Works. Call: (415)243-0100.

July 13 Microsoft Word Part II Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 14 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)864-8350.

July 14 How To Build You Own XT Or AT Clone Computer For As Little As $600 Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 16 Using X Windows Course. Berkeley. Lurnix. Call: 1-800-433-9338.

July 16 Practical Perspectives On OSI Networking Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

July 16–20 SIAM Annual Meeting. Chicago. Society for Industrial and Applied Mathematics. Call: Diana Peirce, (215)382-9800.

July 17 Intro To WordPerfect 5.0 Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 17 Introduction To Novell NetWare Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

July 17–18 X Windows Programming I Class. Berkeley. Lurnix. Call: 1-800-433-9338.

July 17–20 Computer Network Architectures & Protocols Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

July 17–20 Multivendor Networking Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

July 18 IBM PC And DOS Training Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

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Calendar Of Events *continued*

July 18–20 SNA Gateways—An Executive Overview Seminar. Santa Clara. J2 Software Labs. Call: (408)292-6300.

July 19 Dinner Lecture And Meeting. Palo Alto. Software Entrepreneurs' Forum Call: Barbara Cass, (415)854-7219.

July 19 Novell NetWare Systems Management Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

July 19 Beginning FileMaker Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 19 Taxation Of High Technology Seminar. Oakland. David Simon, CPA. Call: (415)893-5753.

July 19 dBASE IV Class. Sunnyvale. Training Works. Call: (408)287-8827.

July 19–20 X Windows Programming II Class. Berkeley. Lurnix. Call: 1-800-433-9338.

July 20 & 27 Ventura Desktop Publishing Class. San Francisco. Training Works. Call: (415)243-0100.

July 21 Shop Till Ya Drop Computer Swap. Oakland. Richard James. Call: Vicki, 1-800-433-7469.

July 22 Computer Show & Sale. Hayward. East-West Computer Shows. Call: (415)388-8893.

July 23–24 Concepts in System Operation Class. Berkeley. Lurnix. Call: (415)849-4478.

July 24 Automating Your Business Systems On The Macintosh Seminar. San Francisco. J.C. Lukrich & Co., CPA. Call: Suzette, (415)864-6770.

July 24 Lotus 1-2-3 Macros Class. Sunnyvale. Training Works. Call: (408)287-8827.

July 25 Mathematica: A Tool For Problem Solving Seminar. Techmart. U.C. Santa Cruz Extension Call: (408)562-5711.

July 25 PageMaker, Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 25–26 Designing Object-Oriented Software: An Introduction Class. Santa Clara. Instantiations, Inc. Call: (503)242-0725.

July 26 PageMaker, Part II Course. San Francisco. Computer Alliance. Call: (415)771-1671.

July 27 Using Lotus 1-2-3 Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 27–29 The American Association Of Artificial Intelligence 1990 Spring Symposium. Palo Alto. Computer Using Educators. Call: Beverly Woolf, (413)549-6036.

July 20–22 CAD For Supervisors Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

July 30–August 2 Introductory C Programming Course. Berkeley. Lurnix. Call: 1-800-433-9338.

AUGUST

August 2 PageMaker, Part II Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 4 Computers At Home: For Your Own Business Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

August 7–10 Network Planning Support & Management Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 8 Microsoft Word Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 8 dBASE III+ Class. San Francisco. Training Works. Call: (415)243-0100.

August 9 PageMaker, Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 9 Microsoft Word Part I Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 9 Automating Your Business Accounting System On A Macintosh Seminar. San Francisco. J.C. Lukrich & Co. Call: Suzette (415)864-6770.

August 9–10 Enhanced Information Services Conference & Expo. San Francisco. Virgo Publishing. Call: (602)483-0014.

August 9–12 AutoLISP Level I Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

August 10 Microsoft Word Part II Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 11 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)864-8350.

August 11 Shop Till Ya Drop Computer Swap. Alameda. Richard James. Call: Vicki, 1-800-433-7469.

August 12 Computer Show & Sale. Santa Rosa. East-West Computer Shows. Call: (415)388-8893.

August 13 How To Build Your Own CAD System Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

August 14 Language Learning Environments Presentation. Cupertino. IICS. Call: (408)866-7941.

August 14–17 Local Area Networks: Implementation & Configuration Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 16 Beginning FileMaker Course. San Francisco. Computer Alliance. Call: (415)771-1671.

August 18 East-West Computer Show & Sale. Vallejo East-West Computer Shows. Call: (415)388-8893.

August 18 Shop Till Ya Drop Computer Swap. Oakland. Richard James. Call: Vicki, 1-800-433-7469.

August 19 Computer Show & Sale. Sacramento. East-West Computer Shows. Call: (415)388-8893.

August 20–22 3D Features/Release 10 Level III Seminar. San Francisco. San Francisco State University Extended Education. Call: (415)338-1205.

August 21–24 Hands-on PC Configuration And Trouble Shooting Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 21–24 Hands-on Datacomm Troubleshooting Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 21–24 Software Project Management Tools & Techniques Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

August 22 Automating Your Business Accounting System On A Macintosh Seminar. San Francisco. J.C. Lukrich & Co. Call: Suzette, (415)864-6770. ■

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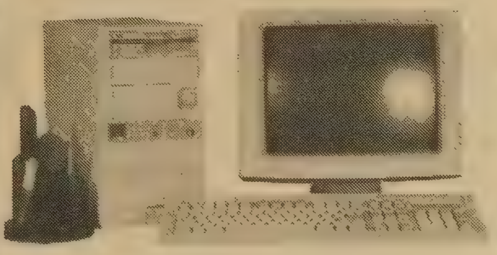

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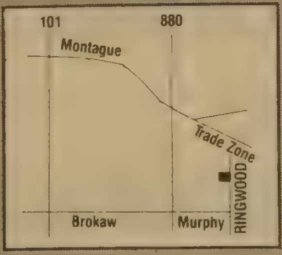

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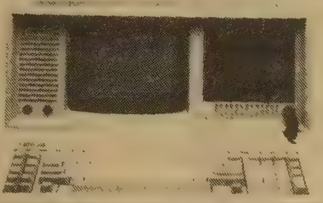

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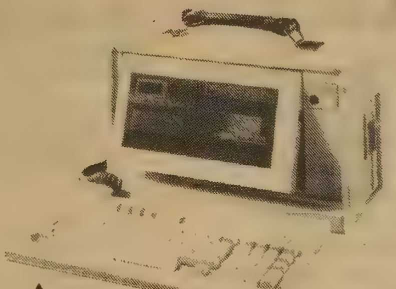

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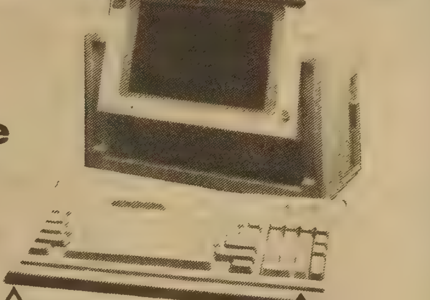

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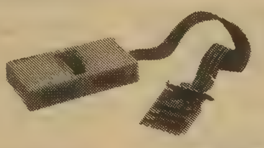

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USER GROUP NETWORK

BULLETIN BOARDS

209

BBS. (209)823-0093. 24 hrs., 1200/2400/9600 HST. Using FX-BBS, supporting primarily MS-DOS programming. Large echomail/file base (350Mb). Free. [Exp. #70.]

408

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AMIGROID BBS. (408)683-2534. 300/1200/2400. Amiga only files. Sysop: John Sanders. [Exp. #70.]

Bay Area Atari Users Group (BAAUG) BBS. (408)986-0215. 8-N-1, 24 hrs., Sysop: Joe Fischer. [Exp. #71.]

Computer Classifieds. (408)253-4280. 300/1200/2400. Commercial and private advertising. Select by category or key words. Sysop: Contemporary Communications, Inc. Voice: (408)253-1709. [Exp. #71.]

Computer Tyme Gap BBS. (408)732-2353. 24 hrs., 7 days, 2400. Alpha site for Gap BBS software, Please add ,,,,2 to your dial string. Sysop: Gary Araki. [Exp. #70.]

Cruzio. (408)423-9995. 1200/2400. If dialing in @ 1200 baud, send a BREAK (CHC) on connect. [Exp. #71.]

DATATYPE BBS. (408)985-7718. 8-N-1, 300/1200/2400. Operated by the Silicon Valley dBASE Language Group. [Exp. #70.]

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415

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Abacus BBS. (415)587-8062. 300/1200/2400. Atari Bay Area Computer Users Society (Abacus) for 8 bit and ST. [Exp. #71.]

AC Co-op BBS. (415)523-1268. 2400. Public domain/shareware, msg. base, registration. Sysop: Doyle Dewberry. [Exp. #72.]

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High Tech Gays/Outreach BBS. (415)572-9594. 8-N-1, 24 hrs., 300/1200/2400. 4-line, security conf. info., echo conf. (HTG_Echo, HTG_Jobs, Bears, Women, AIDS/ARC, TV/TS, Virus_Info., & more), CB char, files, free/open access. Sysop: Sagittarius. [Exp. #73.]

Hot Singles II. (415)939-9001, 8-N-1, 24 hrs., 1200/2400. Sysop: Dave Simpson. [Exp. #70.]

KALW FM Radio BBS. (415)641-4373. 8-N-1, 24 hrs. Features broadcast schedules, updates, listener feedback to program producers and staff. Message traffic. Supports QMail offline readers, MNP v.42 modems. Sysop: Dave Evans. [Exp. #70.]

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TelePlay FRP. (415)968-0729, 659-7978. 300. 15-line, interactive, real-time D&D, like Gemstone but NO hourly charge. Sysop: Marquee. (408)262-4942. [Exp. #70.]

The Apple Core. (415)665-7851. 1200.

The Automated Bar. (415)894-2536. 8-N-1, 24 hrs., 1200. Free law-oriented board sponsored by the Bar Assoc. of San Francisco's Law Office Automation Section. Sysop: Ernest Schaal.

The Big Board. (415)824-7952. 8-N-1, 300/1200/2400. For large, fat, buxom and burly people and their lovers and allies; on-line gathering place for NAAFA and other large peoples' groups. Sysop: Avery. [Exp. #71.]

The California Information Exchange. (415)365-2486. 24 hrs., 2400. The Accountability Project. Job problems, big brother, etc. Fight back. Sysop: Gerhard Flemming. [Exp. #70.]

The City Of Seven Hills. (415)776-3451. 10 pm–9 am, 300/1200. Message bases, a database and a user interest log where the computer matches users of like interests; a game section. Accepts all parity settings. Sysop: Jim Beliakoff. [Exp. #70.]

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The Interlude. (415)458-4344. 8-N-1, 8:00 pm–2:00 am, 300/1200. Multi-interest, flea market, singles connection, sq. dancing, etc. Sysop: [Exp. #72.]

The Philosopher's Stone RBBS. (415)487-9375. 25 conferences, including paganism, ecology, philosophy, politics, ferrets, AA. [Exp. #70.]

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Wetware Diversions. (415)753-5265. 8-N-1, 24 hrs., 1200/2400. Multi-line, PC Pursuitable, San Francisco's Public Access UNIX System. Sysop: Christopher Cilley. [Exp. #70.]

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707

Jim's Beta Suprise. (707)429-9664. Fidonet 1:161/506, 24 hrs., 1200/2400/9600. On-line games, multiple nation-wide msg areas, free reg. Many PD files, medical and dental Q&A areas hosted by local MD & DDS. Sysop: Jim Darrought. [Exp. #71.]

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214

Roundabout and Owl's Nest. (214)324-2529. A BBS shared between Dallas MENSA, and the "Big D" Chapter of NAAFA. [Exp. #71.]

602

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619

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USER GROUPS

3COM

Bay Area 3Com User Group. Call: Ryan Cornin, (408)957-0943, or 354-7804. [Exp. #73.]

ACCOUNTING

Computer Associates User Group. Meetings: 1st month of quarter on 3rd Wednesdays. Holiday Inn, 1500 Van Ness. Come share ideas and information with other local users of Computer Associates Accounting Software! Call: Beth E. Markus, (415)864-6770. [Exp. #75.]

AMIGA

ALF—Amiga Learners Forum. Meetings: 3rd Sun., 6:00 pm., Cupertino Library. Call: (408)262-9334. Beginners group. [Exp. #73.]

Amiga ACCESS (Amiga & Commodore Computer Enthusiasts Society). Meetings: 2nd Thurs., 7:00 pm. Livermore/Pleasanton. PD libraries. Call: Paul, (415)829-6053. [Exp. #73.]

ASCITEC: The Amiga Science & Technology Users Group. Meetings: 2nd Thurs., 5-7 pm, Lockheed, B/157, Rm. 4-C, Sunnyvale. Scientific/Video Applications. Classes available. (408)756-4268. [Exp. #73.]

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USER GROUPS

able. Call: (408)756-4268. [Exp. #74.]

AUM—Amiga Users Of Marin. Meetings: 3rd Wed., 7:30 pm, College of Marin, Science Center, Room 190. Call: Bob Galvan, (415)924-5384. [Exp. #74.]

AWEST Amiga Users. Meetings: 1st Wed., 7:00 pm., Computer Showcase, Geary at Masonic. Call: (415)584-8406. [Exp. #73.]

Northern California Amiga Club. Meetings: 2nd Sat, 2:00 pm. Rico's Pizza, 200 Hartnell, Redding. Call: (916)472-3237. [Exp. #75.]

APL

APL Bay Area Users Group. Meetings: 2nd Mon, 7:00 pm, variable. Call: Tibor Horvath, (415)283-5611. [Exp. #74.]

APL Bay Area Users Group. Meetings: 2nd Mon., 7:00 pm., variable. Call: Tibor Horvath, (415)283-5611. [Exp. #73.]

APPLE

ABUG—Apple Blossom User Group. Meetings: Apple II Group 1st Wed, Mac Group 3rd Wed. Write for info: P.O. Box 53323, San Jose, 95123. Call: (408)395-7900. [Exp. # 74.]

Apple II SIG. Meetings: 4th Thurs., 7:30 pm, Lynbrook High, 1280 Johnson Ave. (W. San Jose). Call: Fred Bernal, (408)258-0284. [Exp. #74.]

Apple IIGS SIG. Meetings: 3rd Tue., 7:00 pm, Wilcox High, 3250 Monroe St., Santa Clara. Call: Dave Cone, (415)322-7867. [Exp. #74.]

Apple SAC—Apple II. Meetings: 1st Wed. and 3rd Tues. Call: (916)991-7313. [Exp. #75.]

Appleworks SIG. Meetings: 4th Tue., 7:00 pm, Wilcox High, 3250 Monroe St., Santa Clara. Call: Egon Jensen, (408)356-2660. [Exp. #74.]

Tri Valley Apple II User Group. Meetings: 1st Thurs., 6:30 pm., Call: Dan Balsey, (415)828-6237 for meeting location. [Exp. #73.]

AT&T UNIX

AT&T UNIX Users Group-North Bay. Meetings: 1st Wed., 6:00 pm., San Francisco AT&T Bldg., 50 Fremont St. Call: Joe Mahoney, (415)584-6510; BBS (415)829-6027. PM new user education. [Exp. #73.]

AT&T UNIX Users Group-South Bay. Meetings: 4th Wed., 7:00 pm., Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Thad Floryan, (408)985-7100 or USNET: the.cup.portal.com. PM new user education. [Exp. #73.]

AT&T UNIX Users Group-Tri-Valley. Meetings: 3rd Thurs., 6:30 pm., Pleasanton AT&T Visitors Center, 4400 Rosewood Dr. Call: Ed Novi, (415)225-2996. PM new user education. [Exp. #73.]

ATARI

ABACUS (Atari Bay Area Users Society). Meetings: 1st Sat. Call for place/time, (415)753-8483. [Exp. #74.]

San Leandro Computer Club. Meetings: 1st Tues., 8:00 pm. San Leandro Community Library. Call: Keith Simmons, (415)887-2008. [Exp. #75.]

ST-ACE (Atari Computer Enthusiasts). Meetings: 3rd Thurs., 7:00 pm., Baptist Church on Sebastepol Rd., Santa Rosa. Call: Hal Andersen, (707)542-1745. [Exp. #73.]

AUTOCAD

AutoCAD DCA Engineering Software Users Group. Meetings: 3rd Wed. Call for location. Call: Mike Foley, (415)734-0707. [Exp. #73.]

CAD/CAM

SF Bay Area C.A.S.E. Users Group. Meetings: Once per quarter. Call: David Plotkin, (415)842-6706. [Exp. #75.]

Textile Computer Users Group—TCUG. Meetings: Bimonthly, 1st Sun, 10:00–noon. Bedford Hotel, San Francisco. Call: (415)284-1635. [Exp. #75.]

COMMODORE

Cupertino Chapter Of 64/More Commodore User Group. Meetings: 3rd Sun, 6:00 pm. Cupertino Library. Call: (408)262-9334. [Exp. #75.]

CWEST Bay Area Commodore Users Group. Meetings: 3rd Wed., 7:00 pm. H. Hoover Mid School. Call: (415)626-9946; BBS: (415)431-4829. [Exp. #73.]

North Valley Chapter Of 64/More Commodore User Group. Meetings: 2nd Sat, 10:00 am. Milpitas Library. Call: (408)262-9334. [Exp. #75.]

San Jose Chapter Of 64/More Commodore User Group. Meetings: 1st Sun, 6:00 pm. Mercury Savings on Blossom Hill. Call: (408)262-9334. [Exp. #75.]

dBASE

Clipper SIG. Meetings: 3rd Tues., 8:00 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. Special interest group of the Silicon Valley dBASE Language Group. Call: J.R. Whiple, (408)243-2796. [Exp. #73.]

Database Design SIG. Meetings: 3rd Tues., 7:00 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. Special interest group of the Silicon Valley dBASE Language Group. Call: Mark Gerow, (408)326-3364. [Exp. #73.]

dBASE IV SIG. Meetings: 1st Tues., 7:00 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. Special interest group of the Silicon Valley dBASE Language Group. Call: Fletcher Johnson, (408)283-1333. [Exp. #73.]

dBXL/Quicksilver SIG. Meetings: 3rd Tues., 8:00 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. Special interest group of the Silicon Valley dBASE Language Group. Call: Karl Snyder, (408)846-1814. [Exp. #73.]

FoxBase/FoxPRO SIG. Meetings: 3rd Tues., 8:00 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. Special interest group of the Silicon Valley dBASE Language Group. Call: Mark Scaramella, (408)288-8423. [Exp. #73.]

Silicon Valley dBASE Language Group. Meetings: 2nd Tues., 6:30 pm. Ernst & Young, 55 Almaden Blvd. (Plaza Bank Bldg), San Jose. A non-profit volunteer organization dedicated to the education and development of database users and professionals. Call: Michael Masterson (408)972-4889. [Exp. #73.]

Ventura SIG/SFPCUG. Meetings: 3rd Tues., 6:30 pm. 660 Market St., Ste. 215, San Francisco. Call: (415)391-1333. [Exp. #73.]

DESKTOP PUBLISHING

Desktop Publishing SIG/SFPCUG. Meetings: 3rd Tues., 6:30 pm. 660 Market St., Ste. 215, San Francisco. Call: Phil Smith, (415)391-1333. [Exp. #75.]

EAGLE

Eagle Computer Users Group. Meetings: 2nd. Sat., 9:00-12 noon, Tandem Computer, 10435 N. Tantau Ave., Cupertino. Call: (408)972-1965. [Exp. #73.]

EPSON

Bay Area Epson Salts. Meetings: 2nd Tues., 7:30 pm. 2611 Broadway, Redwood City. Call: Joe, (415)364-9232, or Tom, (415)992-5475. [Exp. #73.]

FOCUS

NC FUSE—Northern California FOCUS Users. Meetings: quarterly. P.O. Box 61325, Sunnyvale, CA 94088-1325. Sharing FOCUS knowledge and experience. [Exp. #73.]

GENEALOGY

Family Roots Genealogy Program User Group. Meetings: Jan, March, May, July, Sept, & Nov. For info: Joseph L. Rick, 135 Leslie Drive, San Carlos, CA 94070-3459. Include SASE. [Exp. #74.]

IBM AND COMPATIBLES

Basic SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)952-3450. [Exp. #75.]

Beginners SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)211-9166. [Exp. #75.]

Columbia SIG/SFPCUG. Meetings: 3rd. Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)566-0587. [Exp. #75.]

Desktop Publishing SIG/SFPCUG. Meetings: 3rd Tues., 6:30 pm. 660 Market St., Ste. 215, San Francisco. Call: (415)391-1333. [Exp. #75.]

Investment Software Association, a SIG of San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm. Donatello Hotel at Post and Mason. Call: (415)788-5388. [Exp. #75.]

Lotus SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)282-4100. [Exp. #75.]

MS Word SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)929-1993. [Exp. #75.]

Napa Valley PC Users Group. Meetings: 2nd Wed., 7:30 pm., Buck's lower plaza, 10 Chapel Hill Dr. Call: Bob Kulas, (707)255-9241. [Exp. #73.]

New Users SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)457-0729. [Exp. #75.]

P.I.E. IBM And Compatibles SIG. Meetings: 3rd Wed., 7:30 pm, General Disk Corp., 1530 Montague Expressway. Call: Clay Walker, (408)736-7704. [Exp. # 74.]

PC Clone Users Group. Meetings: 2nd Mon., 7:00 pm. Fort Mason Center, Bldg. E, Rm. 287. BBS: (415)621-8425. Call: (415)861-9321. [Exp. #73.]

PC Professionals SIG/SFPCUG. Meetings: 2nd Thurs., 6:15 pm. Call: Kendall Callas, (415)821-1310. [Exp. #75.]

Peninsula Computer Club—"Kay-Fun." Meetings: 2nd Thurs. 7:30 pm. Social Room, Lauren St., San Carlos. CP/M and DOS libraries. Call: BBS: (415)571-9259. Voice: 593-9981. [Exp. #73.]

San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm. Donatello Hotel at Post and Mason. Call: (415)788-5388. [Exp. #75.]

San Francisco Computer Society. Meetings: 1st Mon., 1350 7th Ave., San Francisco. Call: (415)929-0250. [Exp. # 74.]

San Francisco PC Users Group. Meetings: 3rd Mon., 3145 Geary Blvd., Ste. 155, San Francisco. Call: (415)221-9166. [Exp. #73.]

Teachers SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)982-4221. [Exp. #75.]

TRS Nybblers. Meetings: 2nd Fri., 8:00 pm, Chabot College, Bldg 1560. MS-DOS, UNIX, OS-9, CP/M. BBS (415)352-8442. Call: Ken Bailey, (415)462-4442. [Exp. #74.]

WordPerfect SIG/SFPCUG. Meetings: 3rd Mon., 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)821-1310. [Exp. #73.]

KAYPRO

Peninsula Computer Club—"Kay-Fun." Meetings: 7:30 pm. Social Room, Lauren St., San Carlos. CP/M and DOS libraries. Call: (415)571-9259. Voice: 593-9981. [Exp. #73.]

KNOWLEDGE-MAN

Bay Area KnowledgeMan (And Guru)User Group. Meetings: 1st Tue, 6:30 pm. JNZ, Inc., Lafayette. A forum for discussion and info. concerning mdbs products, esp. KnowledgeMan and Guru. Call: (415)947-4878. [Exp. #75.]

LAPTOPS

Bay HPX HP Laptops & Handhelds. Meetings: 2nd Sat.; Call: Michael Felsenstein, (415)564-8279. [Exp. #74.]

MACINTOSH

AHUG—Apple Hypercard Users Group. Meetings: 1st Fri., 7:00 pm, Cupertino. Guest speakers & stack downloading. Call: (408)974-1707 [Exp. # 74.]

MacDiablo Macintosh Users Group (MDUG). Meetings: 4th Wed., 7:30 pm. Community Rm., Glendale Federal Bank, 3001 Crow Canyon Rd., San Ramon. Call: Harvey Scudder, (415)828-4995., Rym Maggiora, 829-5501. [Exp. #73.]

Macintosh Application Group. Meetings: TBA. Call: (415)751-9185. Main focus is application support for the user and language programming, all levels. Newsletter is in the making. [Exp. #73.]

MacSEF. Meetings: 3rd Tue, 7:00 pm. Call: Tony Meadow, (415)644-9400. [Exp. #75.]

North Coast Mac Users Group. Meetings: 3rd Wed, 7:30 pm. Sonoma State University, Darwin Hall, Rm. 108. Not a student organization, annual dues for individuals and businesses. Call: Reed Hopkins, (707)542-1089. [Exp. #74.]

P.I.E. Macintosh SIG. Meetings: 2nd Thurs., 7:00 pm, Institute of Computer Technology, 1196 Lime Drive, Sunnyvale. Call: John Alston, (408)735-8247. [Exp. #74.]

MULTIMEDIA

The International Interactive Society—IICS. Meetings: 2nd Tues., 7:00 pm, UCSF Laurel Heights Conference Center. Call: (415)328-7318.

MUSIC

MuSIG. Meetings: 1st Sun, 2:00 pm. Various locations. Call: (415)858-1493. [Exp. #75.]

NETWARE

Central Valley NetWare User Group. Meetings: To be determined. Call: Rick Utley, (209)825-7063. [Exp. #75.]

ORACLE

San Francisco Oracle User Group. Meetings: 2nd. Wed. Various locations. Call: (415)894-4549. [Exp. #73.]

PROGRAMMING LANGUAGES

Basic SIG/SFPCUG. Meetings: 6:30 pm. UCSF, 3333 California St., San Francisco. Call: (415)952-3450. [Exp. #75.]

Fourth Interest Group Of North Bay. Meetings: 3rd Sat., 1-5 pm. 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (415)376-5241. [Exp. #73.]

R:BASE

Peninsula R:Base User Group (PR:BUG). Meetings: 2 Meadowsweet Lane, San Carlos. Call: (415)592-5033. [Exp. #73.]

TEXAS INSTRUMENTS

Texas Instruments Professional Computer Users Group. Meetings: 4th Mon. 55 Temescal Ter., San Francisco. Call: Thor, (415)386-5237, or

Steve (415)968-9543. [Exp. #75.]

VENTURA PUBLISHING

Ventura SIG/SFPCUG. Meetings: 3rd Tues., 6:30 pm. 660 Market St., Ste. 215, San Francisco. Call: (415)391-1333. [Exp. #75.]

PROFESSIONAL ASSOCIATIONS

Digi—Dunces Un-Ominous. Occasionally-not-so-computer-friendly users. [Exp. #73].

Rracsa, For Sysops & Users. Meetings: 2nd Tuesdays, 6:30 pm, CoCo's Restaurant, 1305 S. Mary, Sunnyvale. Call: Irv Hoff, (415) 948-2166. [Exp #73.]

United Sysop's Association! (USA!). Meetings: 2nd Wednesday. 7:00 pm. Vahl's Restaurant, 1513 El Dorado St., Alviso. An organization for Bulletin Boards sysops and users. Call: (408) 453-3321, or Ring-of-Fire BBS, (408)453-33256. [Exp #73.]

Writer's On-line Association Of Technical Communicators. Meetings: Weekly, Berkeley. Call: Cynthia Kolnick, (415)673-5819. [Exp. #75.]

Is Your Listing Missing?

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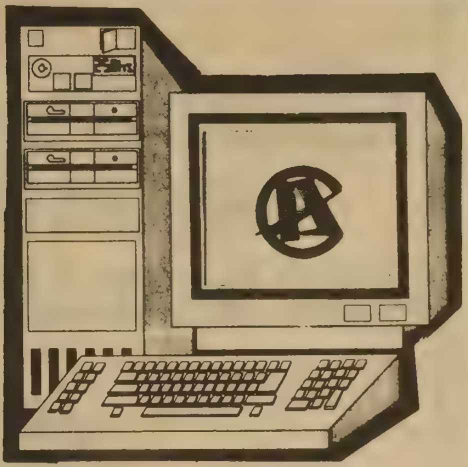

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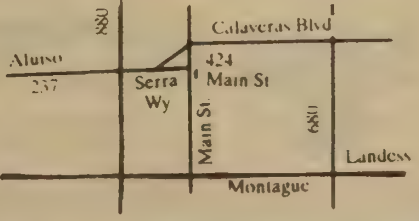

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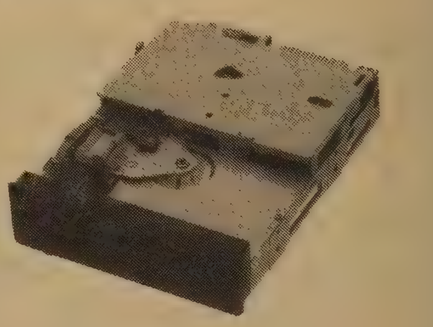

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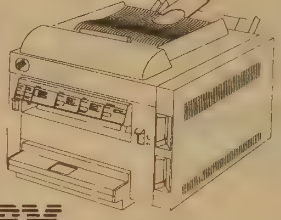

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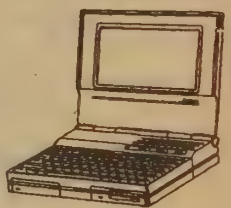

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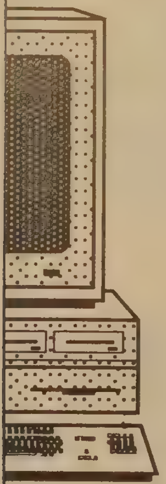

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continued from page 96

Software that did not follow the rules Commodore set out for developers has little hope of running under V2.0. Commodore is working with developers to resolve incompatibility issues.

problem. Software that did not follow the rules Commodore set out for developers has little hope of running under V2.0. Commodore is working with developers to resolve incompatibility issues, and has in some cases put in special case fixes in the OS to unbreak some software.

But given the number of the programs that are currently broken, I believe that developers will have to revise many of the products to function correctly under V2.0—not to take advantage of its features, just to operate normally. If you rely on a specific program, or set of programs, I recommend you test them for compatibility prior to purchasing an A3000 or upgrading your current machine.

Making things somewhat easier is the fact that Commodore lets you run either V2.0 or V1.3 on the A3000. Holding down both mouse buttons while turning the power on brings up a menu from which you can select either OS. It may be possible to provide a mechanism for selecting between either version on other Amigas, but at this point it is not clear whether Commodore will provide one or leave it to third-party developers.

It is also worth noting that many software programs will not run with a CPU other than a 68000. They fail on an A2000 equipped with an '020 or '030 board, and they will fail on the A3000, as it comes with a 68030. Once again, it's important to verify that critical programs will function on the A3000 before you buy either the software or the hardware.

These issues are not unique to the Amiga. Other systems routinely have the same problems as new versions of the operating system are released, or the next generation of the hardware comes to market. Commodore is doing a good job of working with developers to help them test their software, to learn how to revise their programs, and how to plan for future development. I'm giving you the same chance. ■

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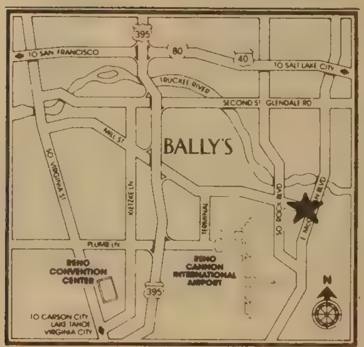
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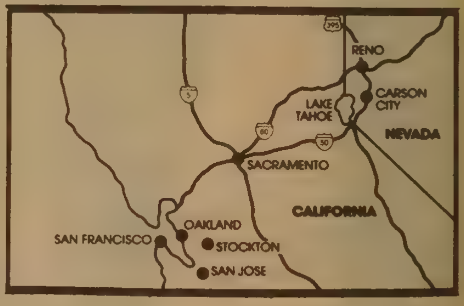
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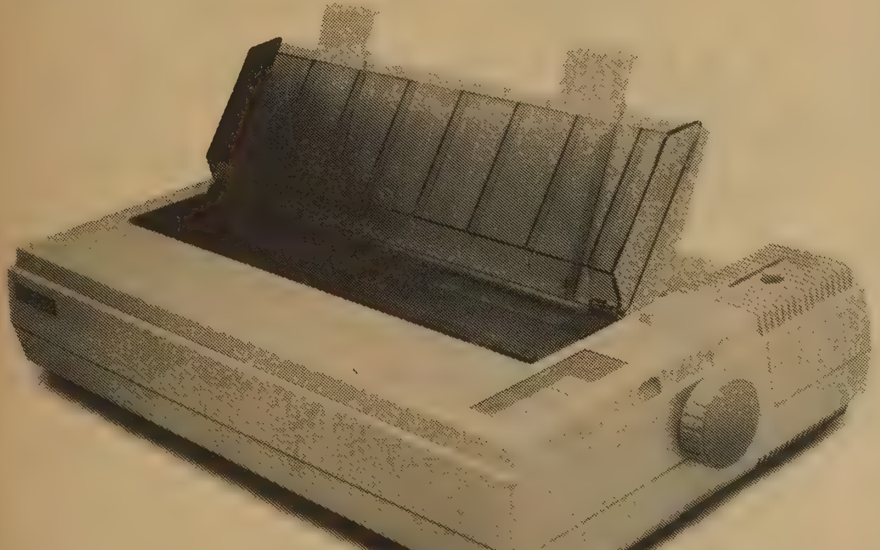

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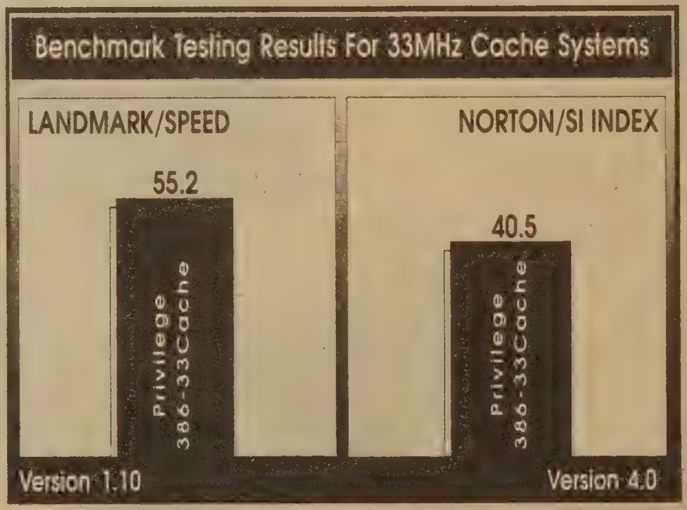

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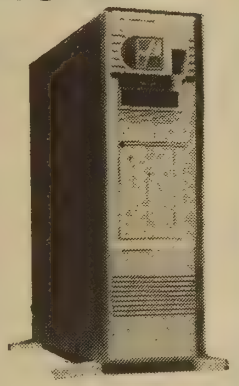

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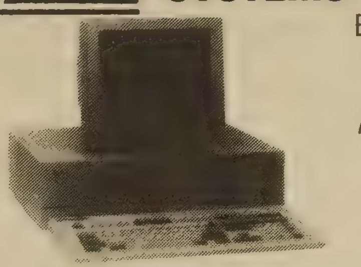

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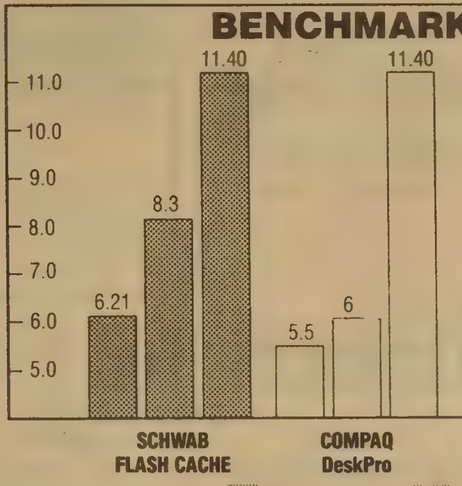

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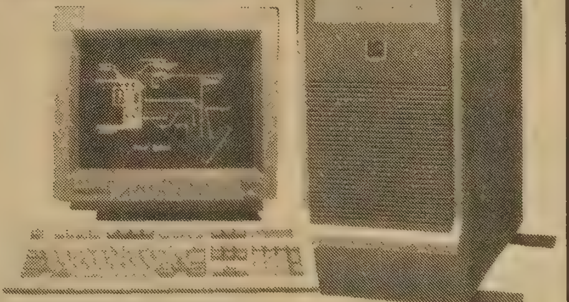

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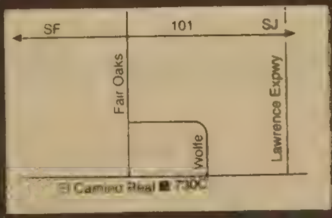

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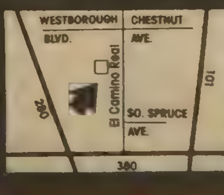

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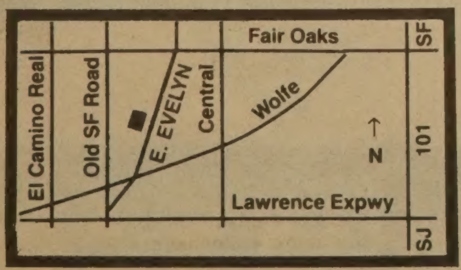

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All The News That's Fit To Print And What I Think Of It

Somebody Has To Be A Skeptic Nowadays

BY JOHN C. DVORAK

As a columnist for both *PC Computing* and *PC Magazine* (among other publications), I see a tonnage of press releases, news alerts, crucial memos and other instruments of breaking news. A mountain of paper is sent from my personal office to the dump. Countless trees are killed and chopped up so some company can brag about some new product.

On top of that are the electronic memos.

What nobody gets to see (or, in this case, hear) are the snide comments I make to myself while reading the daily industry news. Here's an edited download from a typical online news briefing, with my ongoing thoughts boldfaced and in brackets.

DVORAK'S LAST COLUMN

WINDOWS 3.0 DEBUTS TODAY

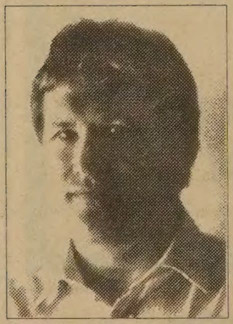
At a Broadway theater in New York City and at seven other locations linked by satellite, 2,500 people will celebrate this afternoon what is widely considered the most significant new personal computer product of the year. ***[It's only May! I'm sure some fascinating new ClickArt will appear before year-end. If this is it, then it looks like a slow year. If this is the best we can do this year then I'm off to Hawaii.]***

Microsoft Corp., the country's largest PC software company, is promising that its new software product—Windows 3.0—will bring the intuitive, friendly feel associated with the Macintosh to IBM machines and their look-alikes. ***[And cows can fly.]***

Although different in detail, Windows features the same basic visual design as the Macintosh, with applications represented as icons and menus that users drop down from the top of the screen. Users can jump from one task to another, with each accomplished in a different box, or window. ***[Gee, just like the Amiga!]***

But Windows has been painfully slow to catch on. For one thing, it lacked the visual consistency and intuitive feel of the Mac. ***[So what makes 3.0 any different?]*** More importantly, other software publishers were slow to develop applications packages—such as word processing or financial analysis software—that could operate under the Windows graphical shell. ***[Gee, I wonder why? Satan!?!??]***

Microsoft is promising that all this will be different with its third installment of Windows. ***[Promises, promises.]*** The software provides a more appealing and consistent screen design, allows several different functions to run at once, and is more easily used on networks that link together many computers. ***[Sounds like an old song to me.]*** And, having religiously courted software developers, Microsoft vows several hundred applications will be available soon that will increase Windows's ease of use. ***[Will this ever end?]*** The firm even co-sponsored a study that found that PCs that employ the use of graphics are more effective tools than traditional models. ***[Uh, oh. Time to pull up the pant legs.]*** The report found that novice users guided with pictures completed 42 percent more work in a given time than their counterparts who had to type in commands. And after two days, the study concluded, text-based users had a frustration level nearly twice as high as that of their graphical colleagues. ***[Maybe these people were brain-dead. Did anyone check on that possibility?]***



John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

For Apple, "it means they have seen their innovation lead in the market diminished," said Rick Sherlund, a computer analyst at Goldman, Sachs & Co. ***[What a crock! I wonder if he thinks the Amiga will tar and feather Apple too.]***

Paine Webber, Inc. analyst Stephen K. Smith last week downgraded his rating of Apple stock from "neutral" to "unattractive" due to Windows. ***["Unattractive?" Does this mean they have to change the color of the machine or what?]*** Smith hailed the new product as the biggest software development since the advent of 1-2-3, the spreadsheet program from Lotus Development Corp. that is among the most popular computer applications. ***[Oh brother! Is this guy actually paid American money for these assertions? Thank you, Paine Webber.]***

The next day this one came out.

MICROSOFT UNVEILS WINDOWS 3.0

Microsoft Corp., after months of speculation, has finally unveiled Windows 3.0, a significantly improved version of its graphical user interface for MS-DOS personal computers.

Bill Gates, Microsoft's 34-year-old chairman, told hundreds of financial analysts, journalists and others at a New York theater that Windows is "a major milestone in the history of the PC industry." ***[As opposed to just a plain-vanilla milestone.]***

Many analysts agree. ***[They do? How is this possible?]*** They say Windows could provide the strongest challenge yet to Apple Computer Inc.'s popular Macintosh by grafting its user-friendly operations onto PCs and compatibles—machines that are notorious for their arcane commands. ***[Arcane? Like DIR for directory? How complex can you get? It sure has me stymied. Duh.]***

Due to a new memory management system implemented in version 3.0, Windows applications are supposed to run markedly faster than before, but preliminary tests by InfoWorld shows some functions running slightly slower than in Windows 2. ***[Slower than Windows 2? How slow can you go? This is rich.]***

Microsoft has also improved the Windows graphical user interface by using a proportionally spaced system font, 3-D scroll bars and command buttons and colorful icons. The interface is similar to that used in Microsoft's OS/2 Presentation Manager. ***[Then why don't we just use OS/2?]***

◆◆◆

As you can tell, this back and forth running commentary never ends. It's my life. I just hope that when you, the reader, pick up a newspaper or magazine that you do the same thing. And always (yes, always) laugh at these financial analysts. They're a riot. ■

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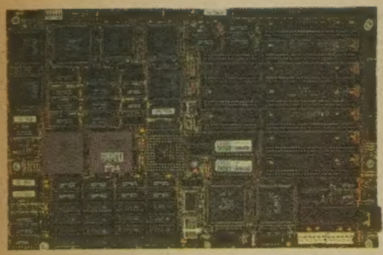

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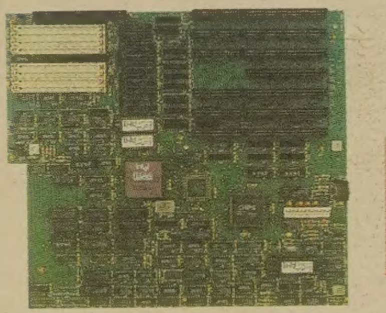

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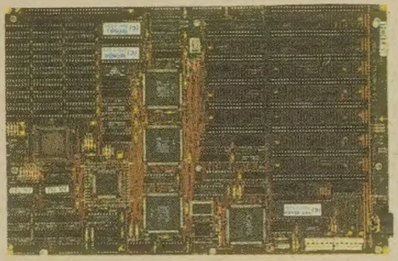
MCT-386MBC-33 .... **$1495.00**



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• USES 16MHZ INTEL 80386SX CPU • EXPANDABLE TO 8MB ON BOARD • 512K/1MB USING 18/36 256KX1 DRAMS OR 2/4 256K SIPS OR 4/8 256KX4 AND 2/4 256KX1 DRAMS; 2/4MB USING 18/36 1MBX1 DRAMS OR 2/4 1MB SIPS; 6/8MB USING 36 1MBX1 DRAMS AND 2/4 1MB SIPS AMI BIOS • CHOOSE FAST Ø WAIT STATE OR 1 WAIT STATE FOR ECONOMICAL USE OF SLOWER RAM • FIVE 16-BIT & THREE 8-BIT EXPANSION SLOTS • CHIPS & TECHNOLOGY NEW ENHANCED ADVANCED TECHNOLOGY (NEAT) CHIPSET • SOCKET FOR 80387SX-16 COPROCESSOR • 8.5" X 13" SIZE FITS IN MINI-AT AND FULL-SIZE AT CASES

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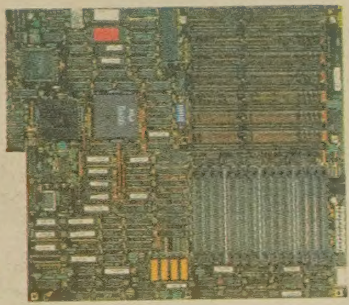

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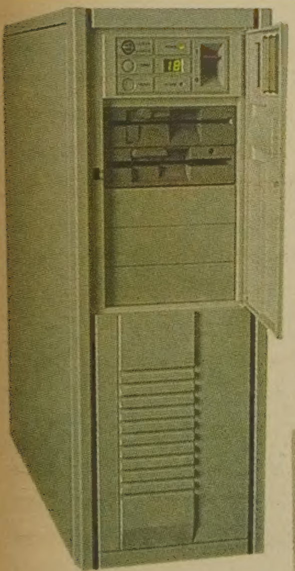

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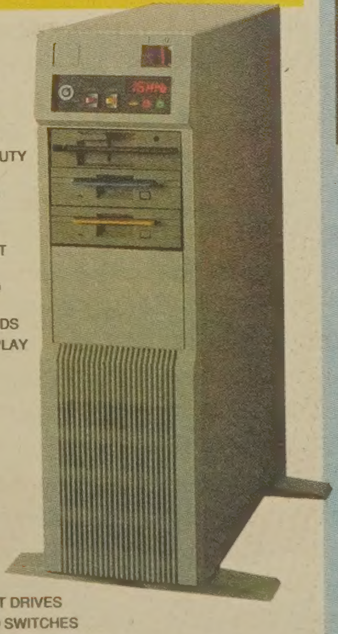

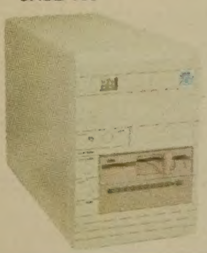

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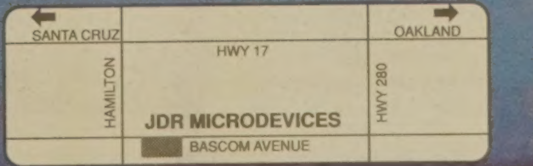


Use the Brains IBM Gave You!

When the PC was new, big programs rarely used even 64K. So IBM® seemed quite generous when it gave us 640K of user memory.

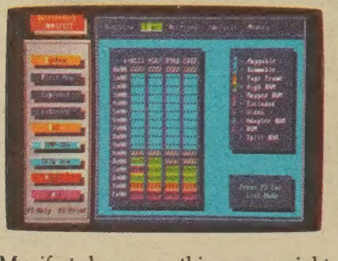
That was eight years ago. Today, users are struggling to accommodate network and mouse drivers, TSRs and buffers within that same 640K along with the new generation of more powerful programs. It's known as 'RAM cram.'

If this is a problem you're facing (or expect to face) we have good news for you.

Introducing Manifest™—the Quarterdeck memory analyzer

Even expert PC users may be unaware how much of the capacity in most PCs is wasted.

That's why Quarterdeck Office Systems, publishers of DESQview,™ developed Manifest, a new, inexpensive tool to assess memory use. It's the result of years of in-depth study of the PC.'s memory map. It does for memory what PC Tools does for disks. All for under $60.



Manifest shows you things you might not otherwise know about your PC.

Manifest gives you a guided tour 'under the hood' of your PC, to show what's going on, what type and amount of memory is available, and even which portions of RAM are faster.

Then it suggests how you might load networks, buffers, TSRs, mouse drivers, and other utilities into unused memory.

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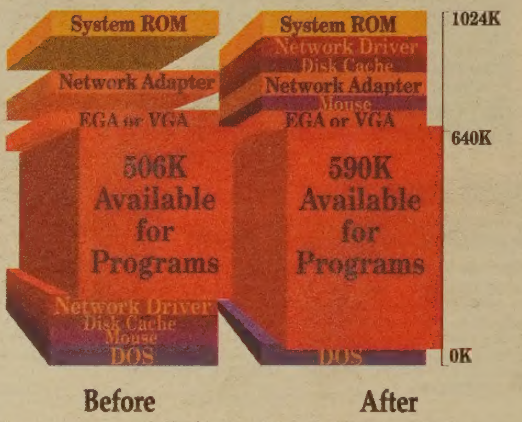
It finds and displays all the contents of your AUTOEXEC.BAT and CONFIG.SYS files, which can be a big help in diagnosing problems.

Manifest even tests memory board speed so you can make informed buying decisions.



Your memory is full of holes. We can fill them. And give your programs more room to run smoothly.

Best of all, you don't need a PhD to understand what you're doing. Manifest's interactive operation tells you how to use the program and what benefits you can expect.

Introducing QRAM™—the Quarterdeck memory optimizer

If you have an EMS 4.0 or EEMS board, QRAM (pronounced cram) can use it to free up more memory within the 0K to 640K area. Gain the additional 30-130K you need for those big programs and files. It looks at your AUTOEXEC.BAT and CONFIG.SYS files and figures out which TSRs, network and mouse drivers and DOS resources can be moved out of program memory.

And if you have an EGA or VGA-equipped PC and don't need graphics at the moment, QRAM will make an additional 96K of memory available! When you need graphics again, QRAM will switch you back to graphics mode! Think how helpful that will be for those big dBASE files.

QRAM can't work miracles, but if there's memory available anywhere, QRAM lets you use it to boost your PCs performance.

QRAM is available bundled with Manifest for just a few dollars more than Manifest alone.

Manifest and QRAM—two more examples of Quarterdeck's commitment to giving you the most productivity out of the PC and software you own today.

Introducing two new Quarterdeck Expanded Memory Managers™ QEMM 50/60 and QEMM-386

QEMM is the all-in-one memory manager for breaking the 640K barrier.

QEMM 50/60 is for the PS/2™ series 50 and 60. It works with all IBM-compatible memory boards, and comes with a long list of adapter data to help you use your MCA hardware better.

QEMM-386 is for all 386-based computers, including older PCs with 80386 upgrade boards. It allows you to expand your RAM capacity—all the way to 32 megabytes, if you like.

Both give you expanded memory compatible with EMS 4.0 and EEMS. Both are also extended memory managers, compatible with XMS.

And both give you maximum control over your memory in the 640K-1024K area, guiding you through decisions on where to move TSRs and network drivers for maximum performance.

Manifest, QRAM, QEMM, and DESQview, our multitasking windowing environment—they're all designed to help you get the most from the software and PC you have today.

System Requirements

Manifest: 8088, 8086, 80286 80386 and i486 PCs & PS/2s

QRAM: 8088, 8086, 80286 PCs. Use of high memory is only available when PC has EMS 4 or EEMS expanded memory or Chips & Technologies shadow RAM.

QEMM 50/60: 80286-based PS/2s and compatibles with IBM PS/2 80286 Memory Expansion Option, IBM PS/2 80286 Expanded Memory Adapter/A or compatible.

QEMM-386: 80386-based PCs and PS/2s and PCs with 80386 add-in boards.

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